TEACHER PERCEPTIONS OF THE FLIPPED CLASSROOM: USING VIDEO

LECTURES ONLINE TO REPLACE TRADITIONAL

IN-CLASS LECTURES

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Advancements in media technologies have resulted in increased student usage causing teachers to struggle to be able to engage and hold student's interest in a typical classroom. As students' needs change, the field of education changes. One strategy that is gaining in popularity among teachers is the implementation of the "flipped classroom" also known as the "inverted classroom" or "reverse instruction" - a method incorporates technology to "flip" or "reverse" what is typically done in class with what is typically done as homework. Through teacher interviews of eight core teachers, this study attempts to discover teacher perceptions of the use of this method. Results of the study reveal that perceptions of the method are more positive among teachers who typically use lecture as a primary mode of information dissemination.

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CHAPTER I

INTRODUCTION

Education is one field that is constantly changing and adapting to meet the needs of students. As students' learning habits change with their interests in new technologies, education must adapt to match those learning habits. The uses and benefits of implementing technology in education have been well documented in part by Maier and Warren in their book, *Integr@ting Technology in Learning and Teaching* (2000). However, a more recent study conducted by Eteokleous (2008) found that "If teachers believe that their traditional practice is reasonable, effective, and efficient, they are likely to resist implementing computer innovations" (p. 683). While there is some resistance, a widespread push toward the implementation of technology in education is present throughout the country. "It is common knowledge that two emergent themes serve as the driving force for integrating technology into K-12 environments; preparing students for the workforce and increasing student knowledge and skills" (Lowther et al., 2008, p. 197). Now more than ever, students spend a majority of their waking hours using some sort of technology. According to Google, YouTube is the third most visited website with over 2 billion views a day (Gomes, 2010). The power and popularity of video is undeniable and could be used as an asset in the classroom. In 2000, Lage, Platt and Treglia (2000) introduced the idea of using technology to "flip" a traditional classroom environment. In this method known as the "flipped classroom," "inverted classroom," or "reverse instruction," among others, what is traditionally done in class is switched with what is traditionally done for homework. Instead of students listening to a lecture during class and going home to do homework, students watch video lectures at home and complete what has traditionally been known as homework in class under the guidance of the instructor. Recently, the flipped classroom method has grown in popularity in the K-12 sector. What are teachers' perceptions of the use of the flipped classroom?

Statement of the Problem

"Researchers espouse that youth are learning differently than any other generation. Many researchers believe that because youth are leading the way with technology, their technology practices impact the way they connect with the world around them. As a result, educators examine how to successfully engage youth in learning by understanding how to tap their technology practices" (DeGennaro, 2008, p. 1). This makes the role of a teacher increasingly more difficult. Not only do teachers struggle to gain the students' interest initially, they labor with getting students to be active in the learning process. This must be overcome in order to make advancements in education.

Purposes of the Study

This study attempted to discover teacher perceptions of using the flipped classroom rather than more traditional instructional methods. It examined how "core teachers" (English, math, science, and social studies teachers) at one high school in Texas currently address the needs of their students and the push toward technology integration. It explored the reasoning behind the use of the flipped classroom and teacher perceptions of the impact it has on student engagement, learning and achievement.

Research Questions

1. What are teacher perceptions of the reason for and against the use of the flipped classroom?

2. What are teacher perceptions of the impact the flipped classroom has on student engagement, learning and achievement?

3. What are teacher perceptions of the use of the flipped classroom to deliver content for their specific subject?

Significance of the Study

The aim of this study was to collect and compare teacher perceptions of the use of the flipped classroom. It attempted to discover teacher perceptions of the effectiveness, appropriateness for the subject matter, and motivation behind using the flipped classroom. Results of this study will be shared with school faculty and administration to assist in determining both usefulness of and training for this method.

Definition of Terms

- Instructional technology: designed to assist in the design and delivery of education

- Digital technology: involving the use of a computer or other electronic delivery device

- Core subject: a required subject for all students including English, math, science, and social studies

- Teacher: any educator in the classroom the majority of the day who serves as the primary instructor and decision-maker in terms of lesson-planning and delivery

- Core teacher: the primary instructor for a class of English, math, science, or social studies

- Video lecture: recorded lecture with audio of teacher or expert teaching a topic either showing image of speaker or computer screen.

- Flipped classroom/flipped method: also known as inverted classroom, where teachers "flip" what is typically done in class with what is done for homework through use of pre-recorded video lectures watched online

CHAPTER II

LITERATURE REVIEW

There has been much research concerning the use of instructional technology, specifically the flipped classroom. The following contains excerpts of and reviews the completed research in an attempt to find holes.

Push to Change

Because youth now are learning differently than previous generations – due to time spent playing video games, on the Internet, using smart phones, watching television, etc. – there is a push to change education to integrate these technologies. "Considering how much time students play digital games, it is not surprising that gamers have different cognitive skills than the previous generations. Gamers have become very good at multitasking" (Green & McNeese, 2007, p. 9). According to research, students spend the majority of the day using some sort of technology. This has caused students to be more active as learners and to be less tolerant of passive learning situations, such as lectures (Gee, 2003; Beck & Wade, 2004). Because of their experience with technology, immediate feedback for work is expected from today's students (Gee, 2003; Neto, 2001). With the current model of education immediate feedback is infrequent, if not impossible.

There have been many studies completed over the benefits of instructional technology in schools. Research findings have shown that students who use computer-based instruction have significantly higher assessment scores than students taught by more traditional methods (Kulik & Kulik, 1991; Sivin-Kachala, 1997).

"Learning environments that include technology as an authentically integral part of learning activities foster emergent and adaptive practices" (DeGennaro, 2008, p. 14). Because of

their technology know-how, students feel empowered when we use these tools as we are using an extension of who they are (DeGennaro, 2008).

"The value of video, and moving images more generally, as a learning resource is well recognized." "Developments in digital technologies, particularly streaming to desktop and portable computers, are adding a new dimension to video-enhanced learning, by enabling learners to dip into a video resource, as they would a book" (Fill & Ottewill, 2006, p. 397).

According to Inan and Lowther (2009), access to and the use of technology improves student learning and better prepares them for the future. Multimedia can now be used as a powerful tool that provides "simulations for training, realism for difficult to observe phenomena, and databases of information on a variety of topics" (Garrett & Ezzo, 1996, p. 3).

According to Lu and Overbaugh (2009), researchers, including Bauer and Kenton (2005), Earle (2002), and Mumtaz (2000), have identified "various positive facets of technology such as improved learning environments, increased student and teacher motivation, enhanced student learning, and more student involvement in instructional activities" (p. 90).

Bloom and Hanych (2002) explored the differing opinions on technology in education. The following are the opinions of some "true believers" (those who subscribe to the belief that the use of technology in education is beneficial and necessary).

> Computers, therefore, are potentially useful tools that teachers can employ to involve students in novel learning experiences that promote active, inquiry-based learning. (p. 5)

> Because instructional multimedia engages more of the senses and requires more skills than just the ability to read, it addresses different learning styles and serves the needs of diverse student populations. Rather than just seeing text and images, students watch, listen, manipulate, like and explore. (p. 6)

> Computers can help students become self-directed, independent learners who take responsibility for their own learning, rather than relying on teachers to provide direction and support. Finally, computer-based instruction can offer teachers the flexibility to individualize instruction and meet the needs of students who differ in motivation or ability. (p. 8)

Studies are beginning to show that instructional software increases student motivations, enhances some types of learning and increases teacher productivity and credibility. (p. 9)

Opinions discovered by Bloom and Hanych (2002) differing from the true believers are covered in a later section.

In his paper, "Technology and Pedagogy: Why Don't We See the Promised Revolution?" Salomon describes technology as a great tool to access information, and to connect students to experts along with other students all over the world. However, technology alone is unable to transform the new information into knowledge. Instead, the active process must occur within the learners themselves. He also suggests that while a more traditional classroom is conducive to memorization of content, technology-rich classrooms using a constructivist approach improve students' real-world skills including composing questions, producing hypothesis, and tackling new problems intelligently (Salomon, 2002).

In Sandholtz, Ringstaff and Dwyer's 1990 Report 10 of *Apple Classrooms of Tomorrow*, there was discussion over the change in instruction after the introduction of technology. Simply introducing technology to the classroom is not enough to implement the change necessary. However, what it does is serve as a vehicle for change as teachers are forced to rethink their role.

> As teachers became less threatened by some students' exceptional abilities on the computer, they reframed their views about teacher role and employed these experts as peer teachers...One teacher developed an assignment that required students to not only solve a problem but also to design a system for helping other students with the problem. Some teachers also began to draw upon students' expertise when problems occurred that the adults could not solve. (p. 6)

This brought out a relevant question, which was further researched through the course of this study. How does technology change the role of a teacher?

Perceived Negatives

There is much research attempting to identify educators' internal barriers preventing

technology implementation. Some of the perceived negatives to technology use include lack of reliability, teacher perceptions of technology use as "edutainment," decreased teacher-student intimacy, and the change required in teaching methodology. The following are excerpts and summaries from that literature.

According to Sims, "many educators lament the lack of progress associated with instructional technology. Despite decreases in the cost of technology and improved access to hardware and software, implementation in the classroom lags behind expectations" (1997, p. 4). He states a reason for this continuing lack of usage. "Technology does suffer from one major limitation: it occasionally fails" (p. 4). While textbooks can be accessed at all times with no limitation of CPU capabilities, "equipment malfunctions are all too common, and even a delay of 10 minutes can throw a lesson plan out the window" (Bloom & Hanych, 2002, p. 6). "Technology drawbacks are always a factor when choosing to use technology as a truly integral part of learning…Technology failure—power, software crashes, and Internet connectivity—will inevitably occur from time to time. Teachers must consider back up plans when issues arise" (DeGennaro, 2008, p. 16).

"But to deny that students today were raised on video games that have 32-bit processing and graphics that rival anything in Hollywood is to ignore that time marches onward. What worked in the past to capture student interest and address the needs of learners may no longer work today" (Sims, 1997, p. 4). "The high level of enjoyment ascribed to video permits a low-anxiety learning context.... However, if fun is merely associated with the notion of less mental effort required, then achievement is not a direct outcome" (White et al., 2000, p. 173). "The mantra of 'learning is fun' suggests that if students are not enjoying themselves they are not learning" (Bloom & Hanych, 2002, p. 5). However, the other side is if students are engaged in the lesson, they will be having fun. Green and McNeese (2007) argue that "to dismiss the use of

edutainment software in the classroom just because students are having fun is unwise" (p. 9). The main argument here is that "instructional technology promises, perhaps better that any other method, a way to merge individual disciplines into a body of related knowledge" (Sims, 1997, p. 4).

Another fear of some educators includes "the increasing use of computers in the classroom threatens to decrease the intimacy between students and teachers, and with it, teacher morale" (Bloom & Hanych, 2002, p. 8).

In an interview, Richard Mayer discusses how technology has failed to change teaching methods. "In spite of its potential to improve education, educational technology has not had a sweeping effect on the way we teach. Throughout this century, we have repeatedly seen reformers predict that the latest technological developments will revolutionize education, but in each case the promises have not been fulfilled." What is the reason for this? He thinks it directly caused by the reformers' approach being technology-centered rather than learner-centered. "Technology per se will not improve education; improvements will come from insightful pedagogy—including the appropriate use of technology—based on an understanding of how students learn" (Soumala & Shaughnessy, 2000, p. 483).

Barriers to Implementation

Finally, the literature reviewed identifies several barriers to technology integration. These barriers include access to resources, time, technical support, teacher beliefs, teacher readiness, overall support, and leadership. The following are excerpts and summaries from the literature identifying these barriers.

According to some researchers, the most common external barrier, access to resources, is a huge impediment to technology implementation (Berge & Mrozowski, 1999; Mumtaz, 2000).

This is most likely because, "unfortunately, educational settings typically do not have access to the latest technology" (Green & McNeese, 2007, p. 13). However, according to the research, increased availability of resources does not always directly improve technology integration by teachers (Lim & Chai, 2008; Lowther et al., 2008).

Time is another barrier that is often named by educators and researchers. Much added time is needed to learn new technologies, develop or adapt lessons, find resources and discover how to integrate the technology into the current curriculum (Bauer & Kenton, 2005; Bennett, 2001; Berge & Mrozowski, 1999; Ertmer, 1999). Findings from Apple Classrooms of Tomorrow research stated "teachers need time to move through different stages of development in order to utilize technology, or any innovation for that matter, to their advantage" (Dwyer et al., 1990, p. 9). According to a study conducted by Lu and Overbaugh (2009) "Both quantitative and qualitative data indicated that the most serious problem in K–12 technology implementation was time constraints, followed by technical problems that could not be taken care of in a timely manner" (p. 89).

Another necessary key to technology implementation that can serve as a barrier is inefficient technical support. Timely, on-site, competent technical assistance is essential to teachers' ability to effectively utilize technology (Byron & Bingham, 2001; Wilson, 1999). According to Lu and Overbaugh (2009), technical problems were the second most serious problem hindering technology implementation. Teachers are more likely to feel ready to implement technology when they have adequate technical support (Hernandez-Ramos, 2005; Sandholtz & Reilly, 2004).

Teacher beliefs are another key factor that could serve as a barrier to technology integration. It is essential that teachers not only buy in to the fact that technology, as a teaching tool, is beneficial to students, but also believe that the difference the extra work and change to

teaching methods will make is worth the extra time and effort. "Implementing change in education must include changing teachers' practices and beliefs. This does not mean abandoning beliefs, but gradually replacing them with more relevant beliefs shaped by experiences in an altered context" (Dwyer et al., 1990, p. 9). Implementers of the technology have to believe in the impact on the classroom and on student learning in order to make the shift in education practices (Ertmer, 2005; Lim & Chai, 2008; Lumpe & Chambers, 2001; Van Braak, 2001;Van Braak et al., 2004; Vannatta & Fordham, 2004; Wozney et al., 2006).

Teacher readiness (including technical and content knowledge, training, and preparation) is another key element necessary for effective technology integration (Pierson, 2001; Bennett, 2001; Ertmer, 1999). In a study conducted by Inan and Lowther (2009), "teachers' readiness had the highest total effect on technology integration" (p. 146). It is not surprising that researchers have found teachers wanting to be comfortable with new technology before using it in instruction (Snoeyink & Ertmer, 2002). According to some research, many teachers currently lack the necessary knowledge and skills to successfully integrate technology (Baylor and Ritchie, 2002; Ertmer and Hruskocy, 1999; Eteokleous, 2008; Pierson, 2001; Van Braak, 2001). It is clear that "continued professional development is needed to better prepare teachers to increase the frequency and intensity of implementation, which could perhaps yield greater and more consistent improvement in student learning" (Lowther et al., 2008, p. 205)

Overall support is also essential for successful technology integration. Teachers not only need technical but also administrative, parental, and peer support. (Becker and Ravitz, 1999; Ringstaff, Kelley, & WestEd, 2002; Sandholtz & Reilly, 2004; Van Melle et al., 2003) In the study by Inan and Lowther (2009), "overall support took the second highest importance within the variables affecting technology integration" (p. 147). This overall support must also include leadership. School leadership has the power to ensure that faculty have the necessary training,

resources, skills, support, and time in order to effectively implement technology (Byron and

Bingham, 2001; Ringstaff, Kelley, & WestEd, 2002; Sandholtz & Reilly, 2004; Van Melle et al.,

2003; Zhao et al., 2002).

The Flipped Classroom

In 2000, Lage Platt, and Treglia published a study titled "Inverting the Classroom: A

Gateway to Creating an Inclusive Learning Environment." According to the study, because of

students' increase in access to multimedia and the ease of use of multimedia resources for faculty,

reaching students with different learning styles is no longer limited by time constraints or at the

risk of sacrificing course coverage. They outline a strategy used in two freshman-level

microeconomics classes and discuss both teacher and student perceptions of the method.

"Inverting the classroom means that events that have traditionally taken place *inside* the

classroom now take place *outside* the classroom" (Lage, Platt, & Treglia, 2000, p. 32).

The goal is to reach students with different learning styles by providing options for the

students to use in learning outside of class and to increase interaction among the students and

teacher inside of class through various exercises and activities. The researchers noted that this

method increased the amount of responsibility placed on the student and said that additional

resources to aid in the study of the material were made available to students. There was also

built-in support and accountability such as the availability of professors to answer questions in an

Internet chat room, interactive quizzes for students to test their knowledge, and worksheets to

check completion of homework. Inside the classroom students worked on experiments, labs, held

discussions, and completed hands-on activities under the guidance of the instructor.

Student perceptions of the course were positive overall, and teachers reported an increase

in motivation in their students using this system. The researchers gave a possible explanation for

the increase in motivation being "that this type of classroom demanded that students take ownership for their learning" (Lage, Platt, & Treglia, 2000, p. 37). The instructors noted that students were generally "more comfortable asking questions in class," possibly because of the "increase in opportunities for one-on-one interaction with the instructor" (Lage, Platt, & Treglia, 2000, p. 37). "From the instructors' perspective, the course was considerably more stimulating to teach. Every day was different and required active involvement with the students" (Lage, Platt, & Treglia, 2000, p. 37). In comparing this system with a traditional classroom, the researchers noted that "it may be that the inverted classroom requires lower student enrollment" (Lage, Platt, & Treglia, 2000, p. 37). The researchers noted one of the strengths of this system being the increase of opportunity for faculty-student interaction. "This interaction is beneficial in two ways: the student is able to clear up any confusion immediately, and the instructor is able to monitor performance and comprehension" (Lage, Platt, & Treglia, 2000, p. 37).

At the time of this study, there were concerns about the increase in cost of using this system because of the development of resources including a website, video lectures, worksheets, etc. as well as concern of the amount of time it would take instructors to develop a course using this system. Some suggestions for dealing with these issues included using already available resources (workbooks, free resources found online, etc.) and dividing the labor with a colleague. Researchers also noted a reduction in costs long-term due to a reduction in prep-time on the part of the instructor after the course has been developed. In conclusion of their study, Lage, Platt and Treglia state the following:

> New learning technologies make it possible for events such as lectures, which have traditionally taken place inside the classroom to occur outside the classroom and events which typically occurred outside the classroom to occur inside the classroom under the guidance of the instructor. The course format described in this article allows the instructor to present options that appeal to most learning styles while still maintaining control over course coverage and content. (2000, p. 41)

A study in 2004 by Daniel Wentland organized nine different teaching methods according to their usefulness in terms of 5 different classifications including Bloom's educational objectives, whether the method encouraged student or teacher oriented activity, if it was technology based, whether it included individual or group focused activity, and if it was time-consuming or time saving. The study evaluated nine methodologies used in teaching economics including: the CPS approach, service learning, lecturing, lecturing plus, interactive (role play), inverted classroom, technology based, case studies, and experiments, demonstrations and dramatizations. The study found that the inverted classroom met cognitive and affective objectives but not necessarily the psychomotor (hands-on) objective from Bloom's taxonomy of educational objectives. The study also concluded that the inverted classroom includes student-oriented activity, making the teacher more of a facilitator as the students take an active role in the learning environment. It also stated that the inverted classroom does not necessarily have to rely on the use of technology, but it is possible to use technology using this method. Finally, the study concluded that using the inverted classroom involved both individual and group focused activity, and classified this method as time-saving rather than time-consuming-- meaning that this method "can be utilized to communicate a lot of information in a relatively short period of time" (Wentland, 2004, p. 646). The researcher made a point to say that the purpose of the study was not to evaluate different teaching methods against each other, but to help evaluate which teaching method(s) would work best for a particular learning situation. He emphasized that "no comparative judgement between any teaching methodologies should be attempted" (Wentland, 2004, p. 644).

Marco Ronchetti from the Universita di Trento in Italy published a study on the flipped classroom which he calls the VOLARE methodology (video on line as replacement of old teaching practices; p. 134). In the abstract of his paper, he says the "aim is to help traditional teachers to switch from the frontal lecture model to a pedigogically more sound and effective

strategy" (Ronchetti, p. 134). According to Ronchetti, the key "relies in taking advantage of today's innovative technology to relief [sic] the teacher from the duty of 'knowledge presentation'" allowing the teacher to "devote all the efforts to a more participatory and interactive exchange with the students" (Ronchetti, p. 134). In the introduction to the paper, Ronchetti suggests this method as a way for teachers to easily transition from frontal lectures, which are criticized due to the passive role played by students, to a more interactive teaching style. He begins by dividing student knowledge into three phases: knowledge acquisition (KA), deeper understanding (DU), and knowledge consolidation (KC). Ronchetti says the goal is to get more teacher involvement during the DU phase, but because time is a finite and expensive resource, it must be taken from another stage of learning. In the VOLARE method, all time in class is to be spent in the DU phase, thus requiring a need to "free the teacher from KA duties" (Ronchetti, p.136). To do this, students are required to view a video lecture before coming to class. Ronchetti argues that the best way to do this is to record the teacher giving the lecture in front of a class to provide a more authentic experience. However, he does concede that the transition to this method would be easiest as a progressive process "during one academic year (some of) the lectures are recorded and then used during the next year. Initially the recording can be limited to a few lectures, so that the VOLARE methodology can be introduced gradually.

This study recognizes that this is not a new idea, but states that the results of previous studies reflect "the immaturity of the technology of the time" and that "over the last decade, the situation has clearly changed up to the point that recent literature is strongly positive in evaluating the success of video lectures" (Ronchetti, p.137). He then cites several studies in which students report a positive experience with video lectures in comparison with traditional lecture. One limitation to the use of this method requires that videos be available in order to apply it, and while readily available lectures can be used, emphasis is placed on the benefits of

the teacher of the course using their own lectures previously recorded in front of a class. He concluded that using this method would also require re-recording of lessons --he suggests one third of the lectures every year-- to allow for content modification.

Ronchetti also published an earlier article, "Using Video Lectures to Make Teaching More Interactive" which argues some of the benefits to this method. According to the study, the main advantages in the use of video lectures include the ability to

- help working-students by bridging the gap given by their absence during regular lectures

- support regular students by giving them the opportunity to recover lectures lost due to forced or elective absences

- assist students having difficulties with the lecture's spoken language

- give the students a mean to review critical sections and check their notes.

In this paper, Ronchetti also notes the costs associated with the change to this method stating that if teachers follow the recommendation of recording actual classroom lectures and using them the following year, "no extra work is required" (Ronchetti, 2010, p. 46) on the part of the teacher and "the production cost is close to zero" (Ronchetti, 2010, p. 47).

During the Flipped Class Conference held in Woodland Park, Colorado in July 2011, teachers using the flipped method together wrote an article discussing the nature of the flipped class titled "The Flipped Class: What It Is and What It Is Not" (Bergmann, Overmeyer, Wilie, 2011). Their conclusions on what the flipped classroom IS NOT are as follows:

- A synonym for online videos. When most people hear about the flipped class all they think about are the videos. It is the interaction and the meaningful learning activities that occur during the face-to-face time that is most important.

- About replacing teachers with videos

- An online course

- Students working without structure

- Students spending the entire class staring at a computer screen

- Students working in isolation

Their conclusions about what the flipped classroom IS are as follows:

- A means to INCREASE interaction and personalized contact time between students and teachers

- An environment where students take responsibility for their own learning

- A classroom where the teacher is not the "sage on the stage" but the "guide on the side"

- A blending of direct instruction with constructivist learning

- A classroom where students who are absent due to illness or extra curricular activities such as athletics or field trips, don't get left behind.

- A class where content is permanently archived for review or remediation

- A class where all students are engaged in their learning

- A place where all students can get a personalized education

Conclusion of Literature

As pointed out in the review of the literature, studies have suggested the benefits of learning technologies, specifically of the use of learning technologies through the inverted classroom, also known as the flipped classroom. While the use of the flipped classroom is not new, there has recently been more widespread use of the method possibly due to an increase in accessibility to technology both in school and at home. This study focuses on the use of the flipped classroom by attempting to discover teacher perceptions of the use of this method.

CHAPTER III

METHODOLOGY

The constant comparative method (CCM) of qualitative analysis in the grounded theory

approach by Glaser and Strauss (Glaser & Strauss, 1965; Strauss, 1987; Glaser, 1992) was used

in this study through following the process designed by Boeije in the study "A Purposeful

Approach to the Constant Comparative Method in the Analysis of Qualitative Interviews" (2002).

In grounded theory, the theory or hypothesis is grounded in the data collected. The first step is

data collection then coding and categorizing to form a theory. The CCM involves a process in

which to analyze the data to come up with a grounded theory. Boeije's study provides a clear

approach for using the CCM to analyze interviews. While the model study provides five steps in

a step-by-step approach, the topic of this study lends itself to use three of them.

The first step was comparison within a single interview. Each of the eight interviews was

transcribed and then, using the process of open coding, the transcription of each of the interviews

was studied by the researcher.

> *Teacher F:* ...Once they watch the video notes I can throw words up or a problem up on
> the board and say how are you going to do this? And they have to be able to tell me how
> they're doing it instead of me showing them everything, they are the ones telling me how
> to do it.

The above comment was coded as student-teacher role shift by the researcher as students

are now being held responsible for the information-gathering and sharing stage of learning.

> *Teacher D:* There are days that, oh my gosh, if this (computer/projector) is gone...

This line initially resulted in two codes titled tech reliability and tech dependency. The

coding process and terminology are a result of the research from the literature review, the

researcher's prior knowledge as a classroom teacher, and commonly shared teacher language

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used during the interview process. Comparing passages and codes within each interview enabled the researcher to determine consistency and themes.

Teacher B: Of the lecture itself? The level of engagement is much lower.

This line resulted in the code engagement negative. Later in the interview, as teacher B continued to comment, her opinion was further developed and became more clear.

Teacher B: My initial opinion is probably the majority of students engagement decreases a little bit. But increases on the activities we do in class.

These lines resulted in the code engagement positive and negative, creating inconsistency within the interview due to her previous comment.

Teacher B: So in some ways it very much enriches what we do activity-wise in class. So I do feel like I get more participation in the activities. They walk into class excited that they don't have to sit there and listen to me lecture them all class period. So I do feel like that increases.

This comment resulted in the code engagement positive, giving more consistency to the teacher's opinions on engagement.

Teacher B: I think the shift in my teaching allows students to while they are in class be more engaged in the activities that they're doing. If they didn't listen to the lecture, they're more inclined to ask questions about the content they didn't walk in knowing. Which means that the students that did watch the lectures - there's more interaction between the students.

The researcher coded this comment engagement positive and student interaction. Finding some consistency in the codes was necessary to determine this teacher's perception of the impact the flipped method has on engagement in the classroom.

The goal of this step was to come up with codes and then determine categories in order to understand the interview as a whole and discover emergent themes or discrepancies within the interview. "It represents an attempt to interpret the parts of the interview in the context of the entire story" (Boeiji, 2002, p. 395). Results from this step include a summary of each interview, a list of codes, and "the distillation of the interview into an inventory of provisional codes or a

conceptual profile" (Boeiji, 2002, p. 397). Portions of the summaries as well as a sample of the resulting codes and categories can be found in the research findings section of this paper.

The second step was comparison between interviews within the same group. For the purposes of this study, groups were determined based on subject taught (English, math, science, and social studies). The data resulting from the first step was used to compare interviews within a group. In some cases, codes were combined and patterns formed. When comparing the science teachers, it became clear that both teachers saw a similar issue of accountability when using the flipped method.

> *Teacher C:* ...and then the other thing I didn't know this year...the other thing I didn't build in is some type of accountability system. Something to make sure that they actually went ahead and watched the video. With homework there's a built-in accountability because they have to turn it in some how or another. But with watching the video, there's not that.

> *Teacher B:* Accountability. That is the largest negative. Because that is the biggest struggle--getting them to actually listen to the lectures before they come into class.

Both comments were coded by the researcher as accountability issues with flipped method. Teacher B's comment was coded with an "*" noting this code as a strong indicator for her. The researcher looked for recurring combinations of codes as well as similarities and differences between interviews. The goal of this step was to continue to "develop the conceptualization of the subject" (Boeiji, 2002, p. 398). Results of this step included more codes, and patterns or combinations of codes that began to construct a typology, a resulting summary of the comparisons among teachers in the same core subject during the second step can be found in the research findings section.

The third step was comparison of interviews from different groups. In this step, the data from all interviews from different groups was compared. The goal of this step was to further develop the data collected. When comparing data from different subject matters, new themes

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emerged as there were clear differences as well as some similarities among teachers of different

subject areas.

> *Teacher G:* I think that, and I guess this carries over into technology too, I think it's good
> if it's not overused. It's just the same as, you know we get on these bandwagons and we
> think that - it's a tool. Technology is a tool. It's not the be all and the end all. And not
> every single lesson has to have technology embedded in it. ...It needs to enhance what
> you're doing, visualize what you're doing, explain what you're doing. But, to do [one
> thing] all the time, it just gets old.

> *Teacher H:* ...trying to get teachers all over the district to use different activities to vary
> instruction to differentiate and so on, and we should all be doing that, but that's hard to do
> when you have a team that has notes from the last 5 years, and they are doing the same
> [lesson]. ...I'm a traditional teacher, but at the same time, I try to respect that the students
> don't want to do the same thing every day. and they can do more than you think they can
> do. ...It's a little bit different every day.

Both of these sections resulted in the code need for differentiation, which, when

comparing the interviews from different groups, were found as a similarity among one math

teacher and one English teacher.

One clear theme that developed in this stage was the appropriateness of the flipped

method according to subject matter. Division between math and science versus English and

social studies teachers became clear. One discovery that led to this theme was the method in

which teachers run their classrooms.

> *Teacher G (English teacher):* I don't straight lecture often. I prefer discussions. and often,
> we do some collaborative work.

> *Teacher A (history teacher):* I hate lecturing....I'm a more visual guy I guess, and you
> have to deal with that as well. You know, what kind of learner are you? If you are an
> auditory learner or something I guess that would be more appealing.

> Teacher C (science teacher): In the AP class, we usually lecture for one or two days, we
> do problems, lots and lots of problems in class, and then we'll have a lab or two that we
> do as well. So, the in class lecture is a small part of that.

> *Teacher H (math teacher):* I have a fairly traditional approach...I'm able to get through
> that information that I give them at the beginning of the class and then do something else
> during the rest of the period so they're at least getting an opportunity to use the theorems

or techniques or whatever they've learned and do something with them before they go home.

All four of the math and science teachers said that lecture was a large part of the content administering portion of their courses, while English and social studies claimed it took up little, if any class-time. Math and science teachers saw application of the flipped method as beneficial to their subject matter since they typically use lecture as a means of content delivery, while English and social studies did not believe it to be applicable in their classes as they already fill class-time with discussion and activities.

A total of eight initial and four follow-up interviews were transcribed for this study. Transcriptions resulted in 41 pages and 29,069 words that were coded, combined into like codes, categorized, and compared using the CCM. Resulting codes and categories can be found below in Table 1.

After the three steps were completed and all interviews were coded and compared using the CCM, an inventory of criteria for comparing the interviews existed. Patterns and connections were apparent allowing the data to be reviewed and revisited. "Going about CCM in a purposeful way and reporting the researchers' own experiences when implementing the step-by-step approach, increases both the traceability and credibility of the researchers' analysis in their qualitative studies" (Boeije, 2002, p. 406). Boeije also points out that "it is important to notice that the steps do not form a linear process, but can be found in all the research phases and support the cyclical method in qualitative research" (2002, p. 408).

Table 1

Categories and Codes

Category	Code
methods	videos to visualize
methods	teacher style - lecture
methods	class discussion
methods	class interaction
methods	tech use to reach kids on their level
flip concerns	accountability issues with flipped method
flip concerns	time
flip concerns	need for feedback mechanism w/ flip
flip concerns	flip relies on the right teacher
flip concerns	need for differentiation
flip concerns	teacher readiness/knowledge
flip useful for:	flip to augment, for review/to reinforce concepts
flip useful for:	flip method for subject matter
flip useful for:	flip for other subjects
flip useful for:	flip for different age group
flip useful for:	flip benefit for absences
impact	flip impact on engagement
impact	flip impact on learning
impact	flip impact on achievement
impact	increased teacher-student interaction w/flip
Teacher	responsibility shift to students
Teacher	experience using flip
Teacher	teacher fears an issue
Teacher	teacher beliefs
Teacher	teacher role shift
Teacher	need prep for college (traditional learning environment)
reactions	overall support
reactions	student reactions to flip
tech	access to resources
tech	tech support
tech	tech reliability

Research Design

The study was qualitative in nature, utilizing interviews of teachers in Highland Park

High School (HPHS), conducted in person. HPHS is a state-funded 9-12 grade school located in

Highland Park, which is located in North Dallas. HPHS is in an affluent community and has many of the technology resources not common across the state. A teacher is defined as any educator in the classroom the majority of the day who serves as the primary instructor and decision-maker in terms of lesson-planning and delivery. A pre-survey consisting of five yes or no questions was used to establish a database and determine interview candidates. The interviews consisted of 15-20 open-ended questions asked in a face-to-face interview. Interview questions were pre-tested to ensure correct wording and clarification to avoid confusion and or leading questions. After the initial interview with each teacher, a theme of the flipped classroom developed in half of the teachers, resulting in a narrowing of focus for this study. Four interviews required a short follow-up interview for further clarification to allow the study to focus primarily on the flipped classroom. Responses were recorded and then transcribed in order to be reviewed and coded using the constant comparative method discussed earlier. The eight interviewees were kept anonymous throughout the study.

Instruments

The instruments of measurement consisted of a pre-survey of teachers; with the primary instrument being interviews analyzed using the constant comparative method (see Appendices A-E). In order to conduct the study, which involved human subjects, a minimal review application for the University of North Texas was required. In February 2011, the application was submitted for review to the University of North Texas. It was approved on March 8, 2011.

Selection of the Sample

The sample included eight core teachers at Highland Park High School who completed the survey and showed willingness to further participate in the study via interview. Teachers were

selected based off their answers to the survey in an attempt to get a variety of perspectives through those willing to participate in the survey. The demographics of teachers are not published in this study in order to maintain the anonymity of participants.

Limitations

This study was limited to responses from core teachers willing to participate in the study through interviews. Their honesty in responses was a factor to consider when reviewing the results. Finally, some consistency in the data is necessary in order to make conclusions.

CHAPTER IV

ANALYSIS/FINDINGS

The summaries below should provide the context from which the results and codes were

derived. Sample codes and categories are included in the summaries.

Teacher A Interview Summary

Teacher A is a social studies teacher, who daily uses YouTube videos to provide visuals

for students in an effort to connect with them and give them a real sense of what they are

studying. "It's such a great way for them to see China or...and just experience it [rather] than just

read about it." He says the downside is that he gets branded by students as the teacher that just

watches YouTube videos, but that in the 49 minutes he has them each day, it's the best way for

them to remember the content and gain an appreciation for the world in which they live. This

teacher does not record his own videos, and has no experience using the flipped classroom

method, which resulted in giving him an "n" for the code *experience using flip* (see Table 2). His

perception of the flipped method is that ideally it's great, but it "puts too much on a freshman."

He comments that it might work better for seniors. This resulted in the code *flip for different age*

group, which was categorized under *usefulness of flip* and then developed into the theme of *flip*

for others. He is under the impression that putting so much responsibility for learning the content

on freshman students will have a negative impact. Teacher A does see this tool as great for a

review, for background knowledge, or to give students a frame of reference. This resulted in the

code *flip for review*, which, after coding and comparing other interviews developed into the code

flip to augment, review, reinforce concepts. He thinks it could be beneficial to introduce simple

concepts, but says "there still needs to be a consequence if they didn't do it" - coded as

accountability issues with flip. However, he is not comfortable using it to teach new material to

[freshman] students without him being there. This opinion is documented in Table 2 as an "n"

under *student-teacher role shift.* because he is indicating that freshmen aren't "mature enough" to

be responsible for the information. He sees using video lectures as a passive way for students to

learn the information while he teaches the material in a much more interactive way,

incorporating, video, discussions, and group debates while disseminating content.

Teacher B Interview Summary

Teacher B is a science teacher, who started using the flipped classroom method in her

classroom in 2010. In her words, Teacher B has the philosophy of "having the kids learn the

content outside of school and then practicing the content inside of school." Teacher B records her

lectures for students to view at home for homework, giving time in class for discussions,

research activities, labs, etc. She started using this method because of the amount of students

who fell asleep during her lectures, causing her to shift her thinking to put the responsibility in

the hands of students. "I wasn't coming to class with the [expectation] that students are

volunteers. I was expecting them to come to class and do what I asked them to do which was

listen to my lectures, but really students are volunteers, and it's up to them to choose to do the

work." This opinion is indicated on Table 2 as a "y" under *student-teacher role shift*. She

mentions accountability as the largest negative of using the flipped method, saying that getting

them to actually watch and listen to the lectures before they come to class is the biggest struggle.

Assessment methods such as giving a quiz over the previous nights' lectures work the best, but

she says that also takes up a majority of her class-which she would rather spend on activities, etc.

She notes that using this method takes a lot of work initially, but that it "will significantly reduce

your workload in subsequent years." This portion of the interview was coded with *accountability*

issues with flip as well as *time*, as Teacher B indicates how much time it takes to prepare to use

this method. She thinks the level of engagement on the lectures may decrease a bit depending on the student, but the level of engagement in-class is increased because of the interaction in class. She is unsure about the impact on learning and achievement, and wants to see students' AP scores to have some hard data to reflect upon. As far as the impact on her lesson, she says using this method allows her to be more consistent, making sure that each class gets the same information. "I can get the information that I want and know consistently every student that listens to those lectures will get the same information." she also thinks there is more camaraderie in her classroom, "there's more interaction between the students." This resulted in a positive code indicating flip impacting an increase in *classroom interaction* in her classroom. As far as the students are concerned, teacher B says there are mixed reviews. She thinks students are comfortable with a more traditional method, but she believes she has increased the rigor of the course by giving the students the responsibility for learning the content and better preparing them for their future. As far as her subject matter, she believes it allows her to use more visuals, which she thinks leaves a more lasting impression on the students. While discussing other teachers' aversions to this and similar teaching methods she said: "I know a lot of people are very scared and intimidated...that's where we need to work is teacher's comfort with technology." Teacher B associates *teacher fears* as a deterrent to using the flipped classroom method.

Teacher C Interview Summary

Teacher C is a science teacher who occasionally uses video lectures to teach students the material at home (for homework) so that students can work the problems during class with the help and supervision of the teacher. He creates his own lectures as well as uses other's lectures found online. "The main thing that I want is to give them some reinforcement of the concepts" and allow students to progress through the lectures at their own pace. This was originally coded

flip to reinforce concepts and then later combined into the code *flip to augment, review, reinforce concepts*. Teacher C's goal is to have all of the content available online where the students can go and find it so that they can use class time to work problems. He used the flipped classroom method for two units in the 2010-2011 academic year. Given the proper time and resources, he would want to have the students spend 20 or 30 minutes a night doing their homework (watching the video) and then post their questions online for him to answer in class, go over sample problems and then work problems together in class. He shared the need for some type of question/feedback mechanism built-in to the delivery mode and expressed concerns about some student feedback from the shift to this method. "I think there's still a percentage of students that really like the traditional, I'm going to come to class, I want you to tell me what I need to know, and them I'll go study that." Teacher C has had mixed reviews from students and so, has mixed opinions about it's uses in the classroom. "Maybe it should just be another tool in the toolbox type of deal, where if this works for you then great. Maybe I still have to incorporate some classroom lectures where students are coming in." Because the teacher expresses concern and is unsure of the use in his class, this was coded *role shift* but was identified with an "m" for "maybe" in Table 2.

Teacher D Interview Summary

Teacher D is a social studies teacher who uses video "all the time...constantly." From YouTube videos, to documentaries, feature films and TED talks, she views using videos as "the lab part of Social Studies....because, you can bring the world to the kids through this." She stresses the importance of discussing the videos, that it is used so that students can visualize what they are learning about, and that videos should not be used as a passive way to disseminate information. All videos are shown during class time. She does not record her own video lectures

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citing her limited technology skills and lack of comfort filming her own voice as reasons. Her perception of the flipped method is that "it's a brilliant program if you have the right teacher" - coded *flip relies on the right teacher*. In her opinion, teachers that use this method have to be perceptive enough to see the kids that say they understand the content, but actually do not. According to teacher D's understanding of the method, she sees how beneficial it would be for math classes, but does not see how it would work in a social studies class, stressing the "social" aspect of it. This is indicated with a "n" in Table 2 under *flip for subject*. She believes that she already does the "application" part of social studies in class, and that her classroom is interactive - noted with a "n" in Table 2 under *class interaction increase with flip*. She mentioned the frustration of trying to get students caught up after extended absences because what they miss in class can not be replicated. Also, she does not think students would benefit from doing what is typically assigned as homework (vocabulary, reading, etc.) in class under the supervision of a teacher. She does see the method working for social studies in an economics class, or at the college level.

Teacher E Interview Summary

Teacher E is an English teacher who believes in the importance of students having the actual book in their hand to be engaged in the text. "It's really low-tech, much of the time. but, we do a lot of discussion. We do a lot of reading in class." She has a more traditional style of teaching, but uses video to help explain topics that students are having trouble understanding (ex. TED talks on what is a metaphor). Videos for this class are supplemental - big idea enhancement, historical background, visualization, and understanding what they're reading in literature. This is indicated in Table 2 as "y" under *videos for visualization.*

At the end of the year, she shows full length movies of literature the students have read in class for film analysis, comparison/contrast. She comments that many of the educational resources are not as sophisticated as she would like. She also uses news clips when there are current events relating to literature they are reading in class. All videos are watched in class with the teacher so they can be broken down and discussed with the teacher. This teacher's perception on the use of video, technology, etc. is that teachers cater too much to the visual culture of students, that it's unfortunate, but necessary. She says that the attention spans of students has shrunk, which is why she insists on reading in class because students will not read at home. The feedback she gets from the "good readers, dependable students" consider that a waste of time, but she continues to read in class because she believes her English class usually gets pushed to the bottom of the homework pile.

She does not think the flipped method would work in her literature class because of the way she teaches - coded as negative under *flip for subject.* Her class time is filled with some timed readings (because students don't make time to read at home) and then discussions. There is very little lecture, but she says the notes students take on her short lectures and the tests on those notes prepare students for college - coded *need prep for college.* "So I try to keep class idea centered, book oriented, and paced so that students can interact with the text in a thoughtful way." She says while most classes are about students sitting passively and taking notes, her class is about talking. She mentions several times the importance of interaction in her class and does not believe the flipped method would increase that interaction - coded as "n" under *class interaction increase with flip* in Table 2. What makes literature unique is that each class is different. An issue that comes from one class is completely different in another. That's what keeps the class alive for this teacher and what she thinks keeps the kids coming back for more.

Teacher F Interview Summary

Teacher F is a math teacher whose class is structured around the flipped method. She has recorded all of her lectures on video and posted them on Moodle (online course) for students to view at night as their homework. Class-time is devoted to answering questions about the notes, working three practice problems and then working the "homework" problems. Because 2010-2011 was the second year (first full-year) that this teacher incorporated this technique, there is a strong scaffolding and structure of the class. There is built-in accountability for students completing the homework (watching the video notes) as students are also expected to take notes while they are watching. The other accountability measures are the three sample problems students complete when they walk in the door. This allows the teacher to see who actually watched the video and can apply it to their work. Students who did not complete the notes sit outside to watch the video notes on their phones before they can come in to show that they can complete the sample problems before starting on their "homework." Possibly due to her amount of experience with the method and the structure of her class, Teacher F does not see accountability issues with the use of the flipped method - indicated with a "n" under *accountability issues with flip* in Table 2.

Teacher F sees some of the benefits of using this method being that students have help working on the problems from both the teacher and peers, students are more active in class rather than just sitting and listening to a lecture, the need for tutors is almost eliminated. "It's a big thing to get a tutor here, well, that's eliminated somewhat because they do their homework with me." She believes that most students don't like to work on their own, that this provides them the opportunity to work in small groups, and that there is more interaction in class - coded *class interaction increase with flip*.

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Another benefit that this teacher sees is how this style works with absences, be it a student, or teacher absence, there are no lost days. The students can still watch the lectures online at home. She lightheartedly expresses concern that "it's kind of scary because then you think maybe they don't need you anymore." This observation represents a shift from the traditional teacher-student roles - coded *teacher/student role shift*. There were a few discrepancies between the findings in this interview and that of previous studies. First, this teacher did not feel that her interactions with students were as meaningful as when she taught with a more traditional method previously. "...I would almost get to every single kid. I mean not every single kid, but I would try to get to every kid, or ask them a question everyday... and [I] don't do that know...it's different. So now when I interact with the kids, it's with a group of kids rather than individually. SO... I definitely, sometimes I wonder... did I make an impact? Did I impact that student or these students?" This finding was not consistent with every teacher in this study, but it is important to note that the change to this method, may for some teachers, impact their student relationships negatively. The second discrepancy found between this interview and the literature review was the impact it had on the classroom. While teacher F, agreed that the implementation of this method required active involvement with the students, her comments were not consistent with the findings of Lage, Platt, and Treglia (2000) saying that every day was different for teachers using this method (p. 37). Instead, teacher F commented that before she used the flipped method she didn't know what questions would be asked in class, but now, "it just seems like it's the same, just about everyday. I work a couple problems on the board or whatever...I don't know how to explain it." This comment was coded as an "m" for maybe under *need for differentiation* as the teacher did not directly indicate the need, but implied it through her reflections. These reflective comments by teacher F after her first year of implementing the flipped method everyday in her classroom are noted as negatives of the flipped method by the researcher.

Teacher G Interview Summary

Teacher G is an English teacher who considers herself to have an interactive teaching style. "I don't straight lecture often. I prefer discussions" - coded "n" under *teacher style - lecture* in Table 2. There is a lot of writing involved, students journal, and interactive discussion is expected in her class. This teacher uses video to introduce a unit, give historical background, and give students a visual aid to connect to what they are reading or provide them with perspective.

Her perception of the flipped method is that the setup takes a lot of outside time and organization. She sees the benefit of using the method occasionally in the case of extended teacher absence or possibly for a particular lesson. However, she thinks using the method exclusively would get redundant and boring. She says "anything that you do all of the time without variation gets old" - coded as *need for differentiation.*

Teacher G's classroom is very discussion based and collaborative. She lectures only on occasion, and mainly guides them through the reading, using their feedback to assess needs for clarification, etc. Because the lesson/lecture is already interactive, she does not see the benefit of switching to the flipped method for her class - indicated with a "n" under *class interaction increase with flip* in Table 2.

Teacher H Interview Summary

Teacher H is a math teacher who claims to have a "fairly traditional approach," but understands that lecturing and having students take notes from "bell to bell" (50 minutes) will put them to sleep. She tries to teach at the beginning of class and then give students an opportunity to practice what they have learned to be sure they know how to do it before they go home and complete the homework. "I'm a traditional teacher, but at the same time, I try to

respect that the students don't want to do the same thing everyday." Teacher H indicated that she does lecture ("y" under *teacher style - lecture* in Table 2). She continues to mention that students need and want variety - coded *need for differentiation* - and mentions the need for students to be able to learn from a textbook to prepare them for college. In response to what some of her colleagues are doing (using the flipped method), she likes the idea, but considers it a risk. It provides a way for them to use technology that they were already using (*tech use to reach kids on their level*), and it makes it convenient. "I think that was an eye opener for me that so much stuff is out there on the Internet." She is open to using this method, but has not yet used it in her own classroom, partially because she is not very technology driven. It is not her natural inclination to look at her computer or cell phone for the answer (*teacher readiness/knowledge*). She also cites lack of time as a factor. She wants to incorporate some of the online lectures next year, but states *time* being a reason why she could not commit 100% to changing the way she teaches. She also says she wants to use what is already out there, pointing students to lectures on the Internet, or watching them together in class and then discussing.

<center>Comparison of Science Teachers</center>

While both science teachers believe using this method allows for class time to work problems and do activities, teacher B and C have some differing thoughts on the method as a whole. One reason both teachers began using this method was to shift the responsibility for learning to the students, allowing them to go out, find the information and be in control of it. Teacher B also mentioned some of the benefits of using this method being the consistency (that all students get the same lecture no matter what period they hear it) and also, convenience (saving the teacher's voice throughout the day). Teacher B mentioned frustration with students falling asleep in class and moving to this method to deal with that issue. Teacher C noted

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reinforcement of concepts and allowing students to progress differently as some of the benefits to this method. Both teachers mentioned accountability being an issue, with teacher C saying that it needs to somehow be built-in to the method while teacher B said holding them accountable in class takes away class time for activities. Both teachers said that the immediate feedback during the lecture is missing. Teacher C said there is a need for an immediate feedback mechanism while students are watching the video lectures at home. Both teachers agreed that the student reaction can be negative, especially for those used to a more traditional style where they expect the teacher to give them the information they need to know.

Comparison of Math Teachers

Teachers F and H both see the benefit of using the flipped method for their classrooms. Teacher F already uses the method exclusively while teacher H has a goal to use it occasionally. Teacher H views using the method as reaching students on their level, since they use technology intuitively. She recognizes the need for differentiation in order to keep students interested. For teacher F, the primary benefit is students do not fall behind when they are sick or absent because of extra-curricular activities. Other benefits from teacher F's perspective are students' ability to go step-by-step figuring out a problem at their own pace because of the ability to pause, and rewind. She says they are able to really pay attention to how to work a problem rather than frantically trying to write down everything the teacher is saying (during a typical in-class lecture). Her classroom is more interactive, and working with students on homework eliminates the need for a tutor (in most cases). According to teacher H, one of the negatives is that students do not learn how to learn from a math textbook, something that is necessary for those students wanting to study upper level mathematics after high school. According to teacher F, one of the negatives

is that not all students will watch the videos and be engaged in them using this method, but that is true with an in-class lecture as well.

Comparison of English Teachers

Teachers E and G agree that the classroom should be a forum for interactive discussion of the literature students are reading. Both teachers mention the limited attention span of students today and the desire for visual stimulation. While both recognize the need to engage students and appeal to their desire for visuals, they also share the concern of showing videos of substance rather than simply catering to students' desire for entertainment. Neither teacher shows a desire to use the flipped method. Teacher G sees the benefit of using the method occasionally in the case of an extended teacher absence, but teacher E tries to teach literature using minimal technology.

Comparison of Social Studies Teachers

Teachers A and D both mention the passive nature of learning content through video lectures and say their classrooms have more interaction. Teacher D does not think the flipped method would work in a high school social studies class, with the exception of economics. Teacher A thinks it could be used for review, but not to teach the majority of new content, especially not to freshman. Both teachers think it would work better and be more beneficial with older students, with Teacher A saying it would work for seniors in high school and Teacher D saying it could be useful in a college course. Because of the nature of homework given in their classrooms, neither teacher sees the benefit of "flipping" what students do in class with what they do at home.

Comparisons of Different Subject Areas

Social studies and English teachers seem to agree that their classroom would not benefit from the use of this method, unless only used on occasion. All four teachers say they rarely "lecture," and instead their classroom is filled with discussion and interaction - something that could not be replicated if students were to do classwork at home. The homework given to students is usually not something any of these teachers think would benefit students to do under the supervision of a teacher. One social studies and one English teacher do not think using the flipped method would have a positive impact on engagement in their classroom, while the other two teachers did not comment on the flipped method in regards to engagement. None of the English or social studies teachers commented on the impact the flipped method would have on learning or achievement because they felt they had no basis to form a judgement. Three of these teachers mentioned that they do make an effort to use technology in order to engage and reach students on their level, while three of them mentioned teacher fears as an influence on whether teachers will try new things such as implementing new technologies in their classroom. Two teachers said that they could see the use of the flipped method on occasion for their subject either as benefit for extended absences, for review, or to reinforce concepts. Two of the teachers make comments clearly against the switch of responsibility for content to students. While none of these teachers saw a benefit of using the flipped method for their subject, all three agreed that it would work for other subjects.

Math and science teachers see the benefit of using the flipped method for their classroom. Whether to use the method exclusively or as an additional mode of content delivery, all four teachers either use the flipped method or expressed a desire to use it. All teachers see the benefit of having a teacher available to guide and help students while working on what is normally considered homework in their classroom. Three of the teachers mention accountability as being a

negative with the use of this method, with the only teacher who uses it exclusively not mentioning it as an issue, possibly due to built-in procedures to combat the issue. All of these teachers believe using the flipped method has a positive impact on engagement, while only one definitively says it has an impact on learning with two saying it is a possibility. As far as achievement, two teachers are unsure of the impact the flipped method has, while one teacher says that it would be almost impossible to measure because of the number of outside variables. All four of these teachers use lecture as a mode of content delivery and three believe that using the flipped method increases teacher-student interaction. Three teachers mention the shifting role of a teacher when using this method and two mention negative student reactions while one mentions positive reactions from students.

Comparison of All Subjects

Math and science teachers consider the use of the flipped method beneficial for their class while social studies and English teachers do not. Three of the four math and science teachers have used the method and the fourth has a desire to use it in the future, while none of the English teachers have used it or express any desire to use it. Six of the eight teachers mention the belief that the use of videos helps students to visualize what they are studying. All of the participants in this study believe that their class-time is made up of student discussion and interaction. Half of the teachers mention the possibility of a shift in responsibility for content to the student and a role shift for teachers. All teachers agree that teacher beliefs and teacher readiness/knowledge have a large impact on the teaching method and the technology used in the classroom. See Table 2 for more information on how teachers' perceptions compare across subject matters.

Table 2

Comparison of Teacher Responses by Subject Area

teaching method	videos to visualize	y	y	y	-	y	y	-	y
	teacher style - lecture	n	n	y	y	n	n	y	y
	class discussion increase with flip	n	n	y	y	n	n	y	y
	class interaction increase with flip	n	n	y	y	n	n	y	y
	tech use to reach kids on their level	y	y	y	m	n	y	m	y
issues with flip	accountability issues with flipped method	y	y	y*	y	-	y	n	y
	time	y	y	y	y	y	-	y	y*
	need for feedback mechanism w/ flip	-	-	-	y-	-	-	-	-
	flip relies on the right teacher	-	y	-	-	-	-	-	-
	need for differentiation	-	-	-	-	-	y	m	y
	teacher readiness/knowledge	y	y	y*	y	y	y	y	y
usefulness of flip	flip to augment, review, reinforce concepts	y	-	-	y	-	y	-	y
	flip method for subject matter	n	n	y	y	n	n	y	y
	flip for other subjects	y	y	m	m	y	y	-	-
	flip for different age group (not freshmen/not highschool)	y	y	-	-	-	-	-	-
	flip benefit for absences	-	-	-	-	-	y	y	y
impact of flip	flip impact on engagement	n	n	y+/-	y+	n	n	y+	y+
	flip impact on learning	-	n	y+	?	n	n	m	m
	flip impact on achievement	-	-	?	nm	-	-	m	?
	increased teacher-student interaction w/flip	n	n	y	y	n	n	m	y
teacher views	responsibility shift to students	n	-	y	m	n	-	y	m
	experience using flip	n	n	y	y	n	n	y	n
	teacher fears an issue	y	y	y*	m	-	y	y	y
	teacher beliefs	y*	y	y	y*	y*	y	y	y
	teacher/student role shift	m	-	y	y	n	n	y	-
	need prep for college (traditional learning environment)	-	-	-	-	y	y	-	y
support/reactions	overall support	ni	y	y	n/a	y	ni	y	y
	student reactions to flip	-	-	y-	y-	-	-	y+	-
technology	access to resources	ni	m	-	ni	ni	y	m	y
	tech support	ni	ni	y	ni	ni	y	ni	y
	tech reliability	ni	y	y	ni	y	y	m	-

Legend: y=yes, y*=yes, strong indicator, y+=yes, positive, y-=yes, negative, n=no, ni=not an issue, n/a=not applicable, m=maybe -=no answer, ?=unsure nm=not measurable

A&D: Social Studies, B&C: Science, E&G: English, F&H: Math

Categories/Themes

After coding the eight interviews, then comparing and combining codes, several categories emerged. Resulting categories can be seen in Table 2. Through further evaluation of codes and categories, two themes emerged.

The negative responses indicated in Table 3 show the relationship between negative

teacher perceptions of the flipped method and teachers who do not prefer to lecture in their

classroom. While all teachers acknowledged some benefits of the use of the flipped method, the

teachers who have a more interactive classroom style and choose not to lecture, do not believe

that the method would have a positive impact in their own classrooms. On the other hand,

teachers who do use lecture as a teaching method in their classrooms are more likely to believe

that the implementation of the flipped method may benefit their students. See positive responses

in the Table 4.

Table 3

Negative Responses Regarding the Use of the Flipped Classroom Method

Negative responses regarding the use of the flipped classroom method							
	teacher/ student role shift	teacher style - lecture	flip impact on engagement	flip impact on learning	increased teacher-student interaction w/flip	responsibility shift to students	class discussion increase with flip	class interaction increase with flip
Teacher A	maybe	no	no	-	no	no	no	no
Teacher D	-	no	no	no	no	-	no	no
Teacher G	no	no	no	no	no	no	no	no
Teacher E	no	no	no	no	no	-	no	no

Table 4

Positive Responses Regarding the Use of the Flipped Classroom Method

Positive responses regarding the use of the flipped classroom method							
	teacher/ student role shift	teacher style - lecture	flip impact on engagement	flip impact on learning	increased teacher-student interaction w/flip	responsibility shift to students	class discussion increase with flip	class interaction increase with flip
Teacher B	yes	yes	yes +/-	yes +	yes	yes	yes	yes
Teacher C	yes	yes	yes +	?	yes	maybe	yes	yes
Teacher F	yes	yes	yes +	maybe	maybe	yes	yes	yes
Teacher H	-	yes	yes +	maybe	yes	maybe	yes	yes

The findings shown in Tables 3 and 4 resulted in two main themes.

- Theme I: Teachers using lecture as a main mode of content delivery are more likely to have positive perceptions of the use of the flipped method for their subject.

As seen in Table 3, none of the teachers use lecture as a primary teaching method in their

classroom, and all teachers had negative responses regarding the impact of the use of the flipped

method in their classroom. Table 4 indicates that all of the teachers choosing to lecture in their classroom had positive perceptions of the impact the flipped method has, or may have on their students and class.

- Theme II: Teachers who do not have a strong belief in the need for students to take more responsibility in the learning process are more likely to have negative perceptions of the use of the flipped method for their subject and students.

The findings in Tables 3 and 4 show that those teachers who indicated that they believe strongly in the need for a teacher-student role shift or a responsibility shift to students were more likely to have a positive perception of the use of the flipped method for their subject. It is also important to note that while teachers who believe there is a need for differentiation in education acknowledged the benefit, but were less likely to view the flipped method as beneficial if used as the sole teaching method in their classroom. Finally, though not as prominent in this study and not consistent among all teachers in this study, teacher readiness - teachers who were less comfortable with technology or did not have the time to devote to learning the technology or implementing the method- were less likely to perceive this method as beneficial for their classroom.

Summary of Findings

The purpose of this qualitative research project was to discover the perceptions of the flipped classroom method from secondary core teachers. The study provided evidence that math and science teachers have a more positive perception of the use of the method for their subject matter, while social studies and English teachers do not perceive the method as beneficial for their subjects.

All participants had some prior knowledge of the flipped method from an educational consultant who visited and spoke to faculty twice in the past three years in addition to

information shared from our campus instructional technologist and teachers using the method on campus.

Research Question 1: What are Teacher Perceptions of the Reason For and Against the Use of the Flipped Classroom?

The findings revealed that the teachers more likely to have positive perceptions of the method for use in their own classroom taught math or science and used lectures as a main method of content delivery. Some of the benefits noted include increased student-teacher interaction, increased student responsibility for the content, easy makeup for student or teacher absences, and teacher guidance during application of learning. Some of the negatives noted by these teachers include accountability for students watching the lectures, the need for instant feedback mechanism, and the time it takes to prepare for this method in the beginning. Seven of the eight participants mentioned accountability as a major negative with the implementation of this method with one teacher saying it is the biggest negative with the flipped classroom method. Teachers of social studies and English classes did not perceive the method as beneficial for their subject and cited their current teaching method (minimal lectures and much interaction) as a reason. These teachers do not perceive the method as beneficial to their classroom interaction. Because of what is typically given for homework in these classes, teachers do not see the benefit of having a teacher give guidance or immediate feedback. These teachers perceive the flipped method as beneficial for other classes or possibly higher-level education.

Research Question 2: What are Teacher Perceptions of the Impact the Flipped Classroom has on Student Engagement, Learning and Achievement?

Math and science teachers agree that using the flipped method increases student engagement in their classroom, while English and social studies teachers do not believe it would

have a positive impact in their classrooms, but acknowledge that it may increase engagement for other subjects. Math and science teachers have mixed feelings about the impact it has on learning, as only some have experience with the method. No teacher gives a definitive answer on the impact the method has on achievement, citing the need for quantitative data.

Research Question 3: What are Teacher Perceptions of the Use of the Flipped Classroom to Deliver Content for Their Specific Subject?

Possibly the most significant finding to this study is that perceptions of the flipped classroom vary widely according to the subject matter taught by the participant. Math and science teachers have very positive perceptions of the use of the method for their subject, while only half English and social studies see a use of the method and, only on occasion. This is most likely due to the way these subjects are typically taught. Math and science courses usually include a teacher-presented lecture and then follow-up with practice of the lesson taught at home. English and social studies courses are more conducive to an interactive classroom, as class discussions and activities aide in learning the content. The "practice" of English or social studies would most likely include reading, writing, or research, activities more easily completed in solitude. This explains the finding that teachers who teach English or social studies are less likely to lecture and thus, less likely to view the flipped method as beneficial for their classrooms.

CHAPTER V

CONCLUSION

Discussion and Implications

All eight participants mentioned teacher readiness as a contributing factor to the use of new teaching methods and or technology integration in the classroom with one teacher considering it to have the highest impact of any influencing factor on a teacher. Teacher fears of change or new technology were mentioned by seven of the eight participants with one teacher mentioning it as having a major impact. However, most teachers agreed that if the beliefs were there, teachers were more likely to face their fears to do what was beneficial for the students. Proper training on the tested flipped classroom method might prove beneficial for those teachers with a desire to use the method as some of the concerns and negatives listed are addressed in previous studies. As noted in the literature review, Inan and Lowther (2009) found that teachers' readiness impacted technology integrations more than any other factor (p. 146).

Cited as an influencing factor in many studies on education, time is mentioned by seven of the eight participants in this study as a major influence on the use of this method as well as any technology integration in their classrooms. One of the seven teachers citing time as a major influence considered it to be the biggest contributing factor to what a teacher does in his or her classroom. This is consistent with the study by Lu and Overbaugh (2009) cited in the literature review indicating that time constraints are the "most serious problem in K–12 technology implementation" (p. 89). This is a concern that must be addressed by school administration, if technology integration is a priority for schools. Teachers must be given time to incorporate new technologies, in addition to being given time to learn and receive proper training on the technologies.

This study shows that because of the nature of the flipped classroom, it is perceived more positively by teachers who typically use lecture as the primary mean of content delivery. Those teachers who have a more interactive, discussion-oriented means of content delivery do not perceive this method as beneficial to their classroom. All eight participants mentioned that teacher beliefs have a major impact on the method a teacher uses as well as what technology a teacher uses in his or her classroom. Two of the eight teachers cited teacher beliefs as being the biggest contributing factor to what a teacher will do in his or her classroom. This is consistent with the findings in the literature review, as stated: Implementers of the technology have to believe in the impact on the classroom and on student learning in order to make the shift in education practices (Ertmer, 2005; Lim & Chai, 2008; Lumpe & Chambers, 2001; Van Braak, 2001; Van Braak et al., 2004; Vannatta & Fordham, 2004; Wozney et al., 2006). Teachers in this study who mentioned a need for a teacher-student role shift, by putting more responsibility on the student for learning, were more likely to have a positive perception of this method for their own classroom.

If the purpose of the flipped classroom method "is to help traditional teachers to switch from the frontal lecture model to a pedagogically more sound and effective strategy" (Ronchetti, p. 134), it it understandable that the method is only seen as beneficial for those teachers who typically teach through lecturing. Those teachers who already fill their class-time with student-teacher interaction, discussion, and activities certainly would not see the benefit of adding a lecture component through homework.

The flipped classroom method demonstrates a trend to transition from the traditional lecture-style classroom to one that holds students responsible for finding the information. In an effort to create life-long learners, rather than students that can simply memorize and regurgitate information, teachers are beginning to teach skills of learning rather than simply disseminating

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content. As stated in the literature review "this type of classroom demanded that students take ownership for their learning" (Lage, Platt, & Treglia, 2000, p. 37). For those teachers who do not see the need for or think their students are ready or capable of being responsible for their own learning, again, this would not be seen as a benefit to their classroom.

One benefit of the flipped method noted both in the literature review and by teachers in this study is the availability for students to get immediate feedback on their work as they are completing it in class, under the supervision of a teacher. This was noted in the literature review as a student need found in previous studies due to student's experience with technology and expectation for instant results (Gee, 2003; Neto, 2001). While instant/immediate feedback is almost impossible with a more traditional teaching model, the addition of technology resources, in this case by way of the flipped classroom method, makes it a possibility.

Some of the concerns about the use of the flipped classroom method expressed by teachers in this study were addressed by researchers in prior studies because of built-in supports and accountability including instant feedback mechanisms and interactive quizzes and worksheets. Lage, Platt, and Treglia (2000) note two benefits of the flipped method being that "the student is able to clear up any confusion immediately, and the instructor is able to monitor performance and comprehension" (p. 37). If the method is used with a proper design, including built-in supports, some of the initial concerns of the teachers interviewed for this study can be dispelled.

The reader should note that while support and resources were noted as key barriers in the technology review, those issues were not as applicable in this study partially due to how wide-spread technologies are in this day and also due to the particular community in which the study was completed as access to resources and technical support are readily available. This is consistent with findings of previous studies, noted in the literature review stating that teachers

are more likely to implement technology when they have adequate technical support (Hernandez-Ramos, 2005; Sandholtz & Reilly, 2004).

Delimiters and Areas for Future Research

There are several limitations to this research study. Although this study has provided insight into core teacher's perceptions of the flipped method, it is only a study of one school district, so making generalizations of findings is limited. Other factors not included in this study include age of participants, years of experience teaching, familiarity with technology, and teaching methodology. A more long-term case study with classroom observations may be beneficial in further research of this topic.

Additional research is needed across a wider range of participants from various school districts to further determine the validity of these findings. In order to discover teacher's perceptions of the impact the flipped method has on learning and achievement, more quantitative data is needed.

Conclusion

For these eight participants, based on their understanding of the flipped classroom, teaching style was determined as a major indicator of teacher's perceptions of the flipped classroom method. Only the math and science teachers (who typically lecture) saw the benefits of this method for their subject areas. The English and social studies teachers view watching videos in class and discussing them as their "lab," so the flipped method is not perceived as beneficial for their subjects.

There is much discussion among the educational community about the changing role of a teacher. This study addresses that discussion with the use of the flipped method changing the role

of a teacher from a traditional information-giver to a more of a guide in teaching students to find the information on their own, guiding their learning and practice. Earlier, the question was raised: how does technology change the role of a teacher? The educational community would say that the role of a teacher is being forced to change because there is no need for the teacher to be the bearer of all information. Now content is easily accessible and readily available thanks to technology. The developments in technology also change the role of a teacher by allowing him or her to challenge students in different ways, providing them will skills and experience, teaching them to be a life-long learner rather than simply teaching them the content in their subject area. The implementation of the flipped method helps facilitate that role change.

In education, as in many industries, trends arise and some adopters throw away all previous methods to put to use the new. Whether the flipped method is viewed as beneficial by a teacher or not, all teachers should recognize the need for differentiation. Every classroom is filled with a variety of different students who come from different backgrounds, have different learning styles, and different needs. Using various methods and teaching styles helps to ensure that a teacher reaches more students, while keeping their interest by refusing to allow the classroom to be predictable.

APPENDIX A

INITIAL EMAIL

Dear teachers,

I could use your help with a quick survey (5 yes/no questions) I am conducting for my thesis study about the the use of instructional video.

http://www.kwiksurveys.com?s=INKEJJ_d88d8339

Thank you!

Kelly Snowden

If you would like more information about my research, keep reading.

I am conducting a survey of core teachers at Highland Park High School in order to determine teachers who use instructional videos as education tools or have strong opinions about the use of instructional videos. This survey will be used to develop a database to help determine candidates for interview for the major part of a thesis on teacher perceptions of the use of instructional videos. My main purpose for the survey is to find teachers to interview for a case study. All interviewees will be kept anonymous.
Your participation in this survey is expected to help this research study. Your cooperation is greatly appreciated. If you have any questions or information to share, please contact me via email.
Thank you!
Kelly Snowden

APPENDIX B

PRE-SURVEY QUESTIONNAIRE

1. Do you use video lectures as instructional tools? Yes/No

      a) If yes, do you record your own lectures? Yes/No

      b) If no, do you have an objection to using video lectures? Yes/No

2. Do you work closely with others who use video lectures? Yes/No

3. Does your department encourage the use of video lectures? Yes/No

4. Do you have strong opinions regarding the use of video lectures as instructional tools?

APPENDIX C

REQUEST FOR INTERVIEW

Dear _____,

Thank you for helping me with my thesis research through your completion of the survey about the use of instructional videos. Due to your survey responses, you have been determined to be an ideal candidate for interview. If you are still willing to participate further, I would like to schedule an interview at your convenience. A confidential, in-person interview would last approximately 30 minutes and be taped for transcription purposes only. All responses will remain anonymous for the purpose of this study. Attached is a copy of the required informed consent form. Please read and sign if you give your consent to be interviewed.

Kelly Snowden

APPENDIX D

INTERVIEW QUESTIONS

1. Tell me about how you teach in a typical week.
   Possible follow-up questions:
   a. Do you use video lectures to support your teaching?
   b. How much additional scaffolding is necessary when using this technology vs. not using it?
   c. Do you record the lectures yourself?
   d. How do you incorporate video lectures into your teaching?

1. What do you think about using video lectures to support teaching or learning?
   Possible follow-up questions:
   a. What impact do you think video lectures have on student engagement? Learning? Achievement?
   b. How do video lectures impact your lessons? Classroom? Teaching?
   c. Has it changed the way you teach? Positively and/or negatively?
   d. How does using video lectures work with your subject matter?
   e. How does it impact your relationship with students?
      -Does that impact your teacher morale?

1. What impacts your ability to use video lectures?
Possible follow-up questions:
   a. How does your access to resources affect your ability to use video lectures?
   b. How does it impact your time?
   c. How does technical support impact your ability to use video lectures?
   d. How does technical reliability impact your ability to use video lectures?
   e. How do teacher beliefs impact your ability to use video lectures?
   f. How does teacher readiness impact your ability to use video lectures?
   g. How does overall support impact your ability to use video lectures?

Last questions: Is there a question I haven't asked? Is there anything else you want to tell me?

APPENDIX E

INTERVIEW FOLLOW-UP LETTER

(hand-written)

Dear _____,

Thank you for your participation in my study over the use of video lectures at Highland Park High School. Your responses will be very helpful in my research. Once my thesis is completed and approved I will share a link where you can view it online.

Thank you again for your responses. If I can ever be of assistance to you please feel free to ask.

Kelly Snowden

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