

Running Head: RESEARCH PROPOSAL: ETEC 500-65B

Research Proposal Final Assignment

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Table of Contents

Introduction	3
Research Problem	3
Definitions	4
Research Question	5
Review of Literature	5
Research Procedures	6
Overall Approach	6
Site and Sample Selection	7
Researcher's Role	7
Data Collection Methods	7
Materials	9
Discussion	10
Possible Outcomes	10
Relevance of the Study	10
Limitations of the Study	10
References	11

Introduction

Research Problem:

Time in the classroom is at a premium. Teachers need to present the information, answer questions, assess understanding, clarify misunderstandings, and differentiate instruction. At the end of the lesson, an exasperated teacher may find that the students that understand the lesson are now bored and those that struggle are frustrated. I am interested in finding a way to utilize precious class time in a way that benefits teachers and students.

Interest in “flipped” classrooms has been growing in the past few years (Yarbo et al. 2014.). The use of time in a flipped or inverted classroom is utilized differently than in the traditional classroom. For example, in the traditional classroom the teacher uses a significant amount of time imparting the information that students need to acquire. In the flipped classroom the lecture material is assigned for homework, often in the form of video-lessons, and class time is reserved for problem solving (Bishop & Verleger, 2013), peer interaction (Demski, 2013), individual and differentiated instruction (Flumerfelt & Green, 2013), and addressing problems and misunderstandings (Fulton, 2012).

Technology has changed rapidly in the past 50 years but the format of education has remained relatively stable. The plethora of new technology must be utilized if schools are to remain relevant in this rapidly changing

environment (Sutch, 2010).

The amount of research dedicated to the efficacy of this new pedagogy increases with the growth of interest and use of the methods. However, I have found that the majority of studies have focused on high school and college level courses. I wish to discover how flipping a classroom affects students and teachers in an elementary class. I specifically want to know if there is any change in disruptive class behaviour and student engagement.

Definitions:

Flipped Classroom – A flipped classroom is one where direct instructional time that is normally carried out by a teacher during class time is instead followed outside of class by the student through some medium. Class time is then used for activities that build on the concept of the lesson and other forms of practice of which the teacher will be able to support (Abeysekera & Dawson, 2015). Other related terms used in the literature are “inverted classroom”, “flipped learning”, and “blended learning”.

Student Engagement – Student engagement includes many behavioural, emotional, and cognitive elements. I will be looking at participation (homework completion, on-topic questions), on-task behaviour, enjoyment, willingness to overcome difficulties, and self-regulation (Fredricks et al., 2011).

Disruptive Class Behavior – Behaviour that impedes the learning activities from being carried out; talking over peers and the teacher, off-task behaviours, asking off topic questions, and distracting others. Disruptive

behaviour can be seen as a continuum of student engagement. Generally, students who are engaged exhibit less disruptive behaviour.

Research Question:

How does the flipped classroom model in grade five math compare to that of the traditional model in terms of student engagement and student behaviour?

Review of Literature:

Interest in flipped classrooms is growing. The Flipped Learning Network (FLN) has released a review of the study on relevant research in 2013 and 2014. This review reports results of an FLN survey which reported that the number of teachers who had flipped a lesson that year went up from 48% to 78% from 2012 to 2014 (Yarbo et al., 2014).

There are numerous case studies of individual teachers and districts using flipped classrooms that I will consult when designing my lessons (Finkel, 2012. Johnson, 2012. Herried & Schiller, 2013.). One need not look far for success stories. Byron High School recorded a 9-12% rise in scores in algebra and calculus once they began to employ the flipped model. Likewise, Clintondale High School documented a 9-19% rise in achievement across all subjects. Clintondale also recorded a 66% drop in discipline referrals upon employing the flipped model (Pearson, 2013). Most research was in a high school setting. I wish to add an elementary perspective to the existing pool of case studies on this topic.

Fulton (2012) lists ten benefits of flipping a classroom which include;

students move at their own pace, classroom time can be used more effectively and creatively, parents have a window into the coursework, and the use of technology is flexible and appropriate for 21st-century learning. She also notes that learning theory supports the new approaches. This is corroborated by other sources that posit that flipped classrooms bring students to higher levels of Bloom's Taxonomy (Sams & Bergman, 2013., Prashar, 2015).

Research Procedures:

Overall Approach:

I will spend about four weeks in a grade five class and observe their behavior and engagement during math lessons. I will design the flipped lessons after a period of familiarizing myself with the class. The lessons will consist of microlectures, short video lectures, podcasts, screencasts, and readings that teach the concept. Students will be assigned these lessons as homework. In the class following the homework assignment there will be brief comprehension quizzes to establish who has completed the self-study. This quiz will also illuminate any global misunderstandings that can be addressed as a class. Class time will then be dedicated to utilizing the concepts of the lesson in student-centered activities. This general procedure will take place for two full units, or about six weeks. During this time I will be monitoring class behavior and engagement with the lesson.

Site and Sample Selection:

I will be conducting this research at an urban primary/elementary school of about 400 students in Newfoundland and Labrador. The sample selection will be an already established grade five class of 23 students. The teacher has 13 years of experience teaching primary/elementary math and has been at the school for 5 years. She has history with nine of the students who she taught in grade three.

Researcher's Role:

I am familiar with the school because I substitute there regularly. The participating teacher and the administration have both expressed interest in the research topic and have agreed to give me access to the site. They have also agreed to help me draft the letter of consent that will be sent home to the guardians. I will work closely with the participating teacher to develop the lessons that will be delivered. I will attend all classes and observe class behavior and student engagement. I will be the primary collector of this data.

Data Collection Methods:

I will be using a mixed-method for this research. The qualitative and quantitative data should complement each other in describing the changes that take place over the course of the research. Outlined below are some of the methods that will be used.

Quantitative Data Collection: Some aspects of student behaviour will

be quantitatively measurable. Students will take a brief quiz to monitor homework completion before each class. I may utilize some service like NB (nb.mit.edu) by MIT or ALEKS (www.aleks.com) by McGraw Hill Education pending approval. NB allows students to participate in a discussion about a document. I can use their comments to compile data about engagement and comprehension. ALEKS is an online assessment program that uses adaptive questioning to see what a child does and does not understand about specific concepts in the curriculum.

Fredricks et al. (2011) provide a breakdown of 21 instruments for measuring student engagement. I will use the Behavioral Observation of Students in Schools (BOSS) to record on-task/off-task behaviour. Other tools may be utilized if they seem appropriate. Furthermore, I can use a tally sheet to record student behaviours. I will codify “engaged” and “disruptive” behaviour and keep a record of each student’s exhibition of both. These observations will be greatly aided if I receive permission to take video of the class, allowing me the leisure to record the behaviours meticulously after each lesson. The school has a standard permission form for this type of request.

Qualitative Data Collection: I will conduct interviews throughout the process. I will attempt to talk to each student privately at least once to gauge their attitudes of the process. The interviews will add insight into student engagement with the material. I will interview the teacher extensively before and after the change in the methodology to get a sense of her experience with

the change. Her observations about the individual students will be important in demonstrating the efficacy of the flipped classroom method.

Materials:

I will use my smartphone, laptop, and the class digital camera to record videos. I will use Windows MovieMaker to edit video and add content. I will use Camtasia to record screencasts. I will use my account with TeacherTube to upload and share the videos. Extra computers may need to be provided to students that do not have access at home. Sweet (2104) provides an overview and a comparison of the different tools available to educators that are interested in creating microlectures, and by extension, flipped classroom resources. NB by MIT will be used to share and discuss material that I have converted to PDF. Other tools may be adopted as the research progresses and the students become comfortable with the method.

Some students may not have computer or internet access at home. In this case I will supply videos on DVD or flash drives. I may also have access to chromebooks and netbooks that the school has acquired. Alternatively, the students can be given time to complete the homework in the computer lab before they leave school.

Discussion

Possible Outcomes:

The measurement tools that I have decided to use will allow a number of possible outcomes to emerge. Student may react to the flipped curriculum by exhibiting more or less engagement and/or disruptive behaviour. It may be that there is no discernable change at all that result from the shift to a flipped curriculum. I predict from the research that has been conducted so far that engagement will increase and disruptive behaviour will decrease.

Relevance of the Study:

This study will add to the growing body of research on flipped methodology by filling a void in the research with regard to using the methodology in elementary grades. I see increased use of technology as an inevitable trend in education. If this methodology can be proven to be effective, even at the elementary level, we can begin to dedicate more research and resources to its development.

Limitations of the Study:

The study is small. My time and access will limit the size of the study to one class over the relatively brief period of ten weeks. I may obtain changes in engagement that could be related to the effectiveness of the new method or to the novelty of the change. Perhaps any short term modification in the

status-quo would evoke change in the way students engage with the lesson. My study is at risk from maturation. The students will be learning as the study goes on. I do not think this is a significant risk because of the short period of the study. Furthermore, the specificity of the variables limits external validity and therefore the generalizability of the study. It is my hope that the results of this study will justify the need for broader research of the effects of this methodology in the elementary classroom.

References:

- Abeysekera, L. & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: definition, rationale and a call for research, *Higher Education Research & Development*, 34:1, 1-14
- Bishop, J.L., & Verleger, M.A. (June, 2013). The Flipped Classroom: A Survey of the Research. Paper presented at 120th ASEE Annual Conference & Exposition: Frankly, We Do Give A D*mn, Atlanta, Georgia, USA.
Retrieved from
<http://www.studiesuccessho.nl/wp-content/uploads/2014/04/flipped-classroom-artikel.pdf>
- Finkel, Ed. (2012). Flipping the script in K12. District Administration, November 2012.
- Flumerfelt, S., & Green, G. (2013). Using Lean in the Flipped Classroom for At Risk Students. *Educational Technology & Society*, 16 (1), 356–366.
- Fredricks, J., McColskey, W., Meli, J., Mordica, J., Montrosse, B., and Mooney, K. (2011). *Measuring student engagement in upper elementary through high school: a description of 21 instruments*. (Issues & Answers Report, REL 2011–No. 098). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory

- Southeast. Retrieved from <http://ies.ed.gov/ncee/edlabs>.
- Fulton, Kathleen P. (2012). 10 reasons to flip. *Phi Delta Kappan*. Vol. 94. No. 2, 2012.
- Herreid, Clyde F., and Schiller, Nancy A.. (2013). Case studies in the flipped classroom. *Journal of College Science Teaching*. Vol. 42. No. 5, 2013.
- Johnson, Graham. (2012). Students, Please turn to YouTube for your assignment. *Canadian Education Association*. 2012.
- Pearson. (2013). Flipped Learning Model Increases Student Engagement and Performance. Retrieved from http://assets.pearsonschool.com/asset_mgr/current/201320/Byron_standalone_casestudy.pdf
- Pearson. (2013). Flipped Learning Model Dramatically Improves Course Pass Rate for At-Risk Students. Retrieved from http://assets.pearsonschool.com/asset_mgr/current/201317/Clintondale_casestudy.pdf
- Prashar, Anupama. (2015). Assessing the flipped classroom in operations management: a pilot study. *Journal of Education for Business*. 90:3, 126-138, 2015.
- Sams, A., & Bergman, Johnathon. (2013). Flip your students' learning. *Educational Leadership*. March 2013.
- Strayer, J.F. (2012). How learning in an inverted classroom influenced cooperation, innovation, and task orientation. *Learning Environ Res*. 15:171-193. 2012.
- Sutch, Dan. (2010). Education futures, teachers, and technology. *Futurelab: Innovation in Education*. Retrieved from http://archive.futurelab.org.uk/resources/documents/other_research_reports/Education_futures.pdf
- Sweet, Dawn. (2014). Microlectures in a Flipped Classroom: Application, Creation and Resources. *Mid-Western Educational Researcher*. Vol. 26.

Issue 1. 2014.

Yarbro, J., Arfstrom, K.M., McKnight, K., & McKnight, P. (2014) *Extension of a Review of Flipped Learning*. Retrieved from <http://www.flippedlearning.org/domain/41>