

Flipped Classroom as a technology aid for Twenty First Century Learning

by

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Abstract

This project is a proposal to introduce Flipped Classroom (FC) for students in grades K-12. This paper includes a user guide on how to start a Flipped classroom video project for beginner and advanced users. The author shares her FC unit of Communication Technology Photography 20 class and her YouTube videos as part of her autoethnographical research proposal. This project highlights the proven success from research results that support FC and the needs of integrating emerging technologies application such as FC in 21st Century Learning. The paper concludes with six significant literature concepts learned throughout the course of the master program in Curriculum Instruction. These important concepts help the author look at her professional teaching practice as an educator and expand her knowledge on what it takes to be a great leader.

Dedication

To my father Hung Luong and my husband Douglas Lim whose words of encouragement got me through the toughest time and supported me throughout the entire master program. Also to my canine companion Hachiko Lim who have never left my side.

Table of Contents

Abstract.....	ii
Dedication.....	ii
List of figures.....	iv
Chapter 1	1
<i>“If the classroom of 2030 looks the same as it does today, we will know we have failed.” -</i> Alberta Cabinet Minister (Inspiring Education, 2010)	1
Introduction	1
Personal educational context.....	2
Background to the study	6
Significance of the study	8
Organization of capstone project.....	10
Chapter 2: Literature Review	11
An introduction of emerging technologies in 21st Century Learning.....	11
The Importance of Emerging Technologies in Education.....	15
Recommendations for Teachers in Application of Emerging Technologies	17
Conclusion - Emerging Technologies in 21st Century Learning	20
An introduction to Flipped Classroom, a 21st Century Learning approach	21
Definition of Flipped Classroom.....	21
Flipped Classroom’s pros and cons.....	22
Why Flipped Classroom teaching method is important in 21 st Century Learning	24
Characteristics of a good flipped class and a good flipped lesson	25
Flipped Classroom Research & Data Interpretation	26
Concerns about Flipped Classroom	33
Conclusion about Flipped Classroom teaching method.....	35
Chapter 2 conclusion about Flipped Classroom teaching method in 21st Century Learning	35
Chapter 3: Connecting Theory to Practice - How to create a Flipped Classroom project	36
Introduction of autoethnography as a research method	36
Introduction of Flipped Classroom (FC) as a project in High School Redesign	39
Why FC is needed in Com Tech Photo 20 class	40
The process of creating flipped projects for beginners	42

Other uses of 1-take video	49
Advanced tools for creating FC videos	50
Data collection, data analysis and report writing	58
Conclusion	61
Chapter 4 Reflection	61
References	73
Appendix	84
Appendix A	84
Appendix B	85
Appendix C	88

List of figures

Figure 1 Retrieved from Inspiring Education: A Dialogue With Albertans, p. 16, 2010.	13
Figure 2 Flip Your Classroom: Reach Every Student in Every Class Every Day, p. 105, by J. Bergmann & A. Sams, 2012.	27
Figure 3 Flipped Learning & Democratic Education, by T.H. Driscoll, 2012.....	27
Figure 4 Live Lecture versus Video Lecture, by L. McCammon & B. Parker, 2014.....	29
Figure 5 The Flipped Learning Model: A White Paper Based on the Literature Review Titled A Review of Flipped Learning, p. 8, by N. Hamdan et. al., 2013.	31
Figure 6 Enhancing Teacher Efficacy Through Transform in Edmonton Catholic Schools, p. 22, by S. Chevalier & R. Nixon, 2014.	39
Figure 7 YouTube website’s main page from https://www.youtube.com/	43
Figure 8 Trang Luong’s YouTube channel from YouTube by T. Luong, 2014.	43
Figure 9 LSL studio tutorial part 1 from YouTube, by T. Luong, 2014.	44
Figure 10 Mei April’s YouTube channel from YouTube, by T. Luong, 2014.....	46
Figure 11 Mrs. Luong’s Com Tech Photo 20 Studio Lighting project on Virtual classroom from MyEcsd, by T. Luong, 2014.....	47
Figure 12 Luong Mon September 29 2014 full day from MyEcsd, by T. Luong, 2014.....	51
Figure 13 How to get to Virtual classroom from YouTube, by T. Luong, 2014.	52
Figure 14 Snagit Image and Video Screen Capture from TechSmith, 2015.....	53
Figure 15 AutoCAD Drawing Tutorial Practice Create Complicated Drawing from YouTube by CAD CAM PLM Design Online Training, 2012.	54
Figure 16 Blue Microphones – Microphone – Gloss Black from Best Buy, 2015.....	55
Figure 17 Camtasia Screen Recording & Video Editing from TechSmith, 2015.	56
Figure 18 Green Screen effect from TechSmith, 2015.	57
Figure 19 Green Screen effect from TechSmith, 2015.	57
Figure 20 Green Screen Made Easy in Camtasia from TechSmith, 2015.	58

Chapter 1

"If the classroom of 2030 looks the same as it does today, we will know we have failed." - Alberta Cabinet Minister (Inspiring Education, 2010)

Introduction

This capstone project focuses on the Flipped Classroom (FC) technological teaching pedagogy that helps educators simplify the teaching process and enhance learning experiences for students in 21st Century Learning. FC is a success in many literature research. Alberta curriculum is moving toward competency based learning to integrate technology to support innovation and discovery (Cross-Curricular Competencies Overview, 2013). Therefore it is my finding that FC is a technological advantage for students' success.

The demand to keep up with the technological changes twenty-first century learning is a constant reminder for educators that our students live in an ever fast changing high-tech society. Graduates face a competitive job market where soft skills are highly valued. The ability to solve problems, collaborate in group projects and acquire knowledge through self-studies are hidden curriculums that students need to achieve in order to function in a workplace today. During my High School years twenty plus years ago, computers had little impact in teaching pedagogy and learning styles. Wireless platform such as laptop, tablet and mobile device is now part of student learning inquiry in today's 21st Century Learning classroom.

Teachers used to be the key holder of knowledge in his/her classroom. Students depended on teachers to provide instructions to learning. This way of teaching and learning is no longer favorable in students' views and today's curriculum. In my classroom, I am a facilitator and leader in my students' learning. Students and I co-create knowledge and self-inquiries. Students are encouraged to be active learners in their learning. Technology, if use properly can

enhance teaching and learning in today's classroom. Teachers need to understand his/her teaching pedagogy and apply certain type of technology to help students achieve their goals in the easiest way. In this capstone project, I introduced FC as a technological aid to help make 21st Century Learning a success.

FC is one of the technological teaching pedagogy that help educators like me solve problems related to teaching. In turn, it helps students become successful learners who possess skills that are favorable in our society today. The literature review in Chapter 2 supports my research questions as well as the concerns of FC's limitations. I put theory into practice in Chapter 3 by exploring FC teaching pedagogy and applying an autoethnography research methodology. Teachers who are interested in exploring the FC teaching methods are recommended to read my opinions, thoughts and comments as I go through the process of creating FC projects. I hope that my personal success and lessons drawn from mistakes can shorten the path to success for teachers who seek opportunities to try out FC.

Personal educational context

Other than core programs, my school is a junior/high school with over one thousand students. It is a fine art focused school, International Baccalaureate (IB) school, Hockey Academy and a diverse Career and Technology options program. F.L.E.X. is offered one hour per day but not on Thursdays for high school, however, F.L.E.X. is only available for junior high on Thursdays. F.L.E.X. time allow students to attend subjects of interest offered by teachers throughout the week for high school and all day on Thursday for junior high. This is a pilot school for technology and district initiative such as Transform and High School Redesign. High School Redesign and Transform projects were piloted since 2013. The projects were initiated by the Alberta

government Education in 2014. Redesigning high school aims at transforming students' experience in school by changing the school structure, culture, pedagogy and leadership (Redesigning High School, n.d.). Every teacher in my school was called to redefine teaching and learning in response to the ten Pedagogical Shifts in the 21st Century Learning.

Most of the staffs are junior high teachers in their early teaching careers and seasoned high school teachers with over ten years of teaching. New initiatives such as Transform generally are well-received by junior teachers. New technologies are adopted faster among the younger teachers. Since it's a large junior/high school, we have one principal, three assistant principals and many key instructional leaders for each department. Over the past eight years, there were six changes in principal. Other administrators are consistent. Initiatives and changes are being picked up by one principal and often left unfinished for the replacement principal. Permanent staff experience many changes due to programs, school operation, initiatives and leadership. Temporary contract staff experience many changes in teaching assignments. The most recent principal served for two years but due to changes in leadership we will have a new principal starting in 2015-16 school year. In the midst of all these changes, the school is undergoing major renovations for the installment of a new community theatre, a twenty million dollar project.

I'm a cross-over junior/high school Career and Technology (CTS) option teacher for eight years in this school. I teach Communication Technology (Com Tech) focusing on Graphic Design/Photography and Videography as well as Design Studies in 3D modeling to students' grade seven to twelve. The multicultural demographic in this school is diverse. Recently, the school experienced a change in demographics due to an increase in students migrating from the Philippines. Most students come from middle class families. Education and positive attitude

toward schooling is very important to parents in this school. There is a small percentage of students who have been in abusive relationships and/or discipline in school due to absences, lack of credits toward graduation, drug/alcohol, and etc. The majority of students value positive aspects of school and education.

Due to the changes in demographics, I've experienced high enrollments in Com Tech and Design programs. In this small junior/high school, administrators work hard to make sure that the scheduling of timetables for both teachers and students are flexible enough to give students in grade ten and eleven a full schedule. Being a cross-over teacher, I need to deal with all the changes in both junior and high school areas. I teach high school courses during the first half of the day and junior high for the remaining of the day. Administrators find it tough to fulfill course requests from high school students who wish to take my course as I do not teach high school in the afternoon. The Administrators then recommended a solution which converted and combined my course to include 10, 20 and 30 courses. This solution allowed administrators to admit students with any background to take my courses. For example, every two days I have Com Tech Photo 10/20/30. Com Tech Photo 10 does not need prerequisites whereas Com Tech 20 and 30 has prerequisites. It is level twenty and thirty that causes complications in a combined class. Every semester I have returning students who take level 20 without all prerequisites from level 10. Since these students did not complete all credits in level 10, they cannot fully participate in all level 20 projects. I need to make special arrangements for students who did not have enough prerequisite for the next level. It would be difficult to manage my teaching assignments if I inherit students who are lack of prerequisites assignments. International

students and English Language Learners are other factors that contribute to the complications in delivering my courses. This has forced me to change my teaching methods.

The most recent semester has been the most difficult of all during my eight years of teaching at this school. My teaching assignment includes two classes of Com Tech Photo 10/20/30, Com Tech Video 10/20/30, Design 10/20/30, Digital Technology (Dig Tech) 7 and two classes of Dig Tech 8, Dig Tech 9, Com Tech 9 and Health 7. Junior high non-combined classes are manageable. Combined high school morning classes drains my energy physically and mentally faster than teaching junior high classes. The class ratio in Com Tech Photo 10/20/30 this semester is 11-8-3 in class one and 11-11-6 in class two. I find it challenging to deliver programs to all levels when I have an equal number of students across three levels. Students in introductory level 10 need more face-to-face instruction than intermediate and advanced students in level 20 and 30.

In a big combined class of thirty-five students, level 20 and 30 tend to wait a long period of time for help while I'm allocating time for my level 10 students. The shortage of time and support is a concern to both parents and students especially the students who have strong interest in the subject. I felt dissatisfied with my teaching performance since students' productivity and project quality produced were low. Students weren't happy because they were not given options to choose projects that best fit their interest. For example, there are two types of students who take Com Tech Photo courses. Students who like to take pictures from camera and students who like to create digital images from a software program. The first type of students belong to a Photography category and the second type of students belong to Graphic Designer category. These are two very distinctive categories of interest.

In an ideal situation, I would propose to the school by offering Com Tech Photo courses for Photography students and Com Tech Graphic Design for Graphic Design students. Since this is a small high school, we do not have enough students to offer Com Tech classes for two separate strands. To solve this problem, I gave students options to pick their projects of interest. Since last school year, students who wished to pursue the course in the Graphic Designer category did not need to do projects that Photographers would and vice versa. Since I allowed students an option to choose projects of interest, students' engagement and participation level as well as the quality of production improved. Student's projects improved but my workload increased due to additional projects in each level. This increase in project management affected my teaching performance. My stress started to accumulate since last school year.

Background to the study

During summer of 2013, I started the graduate studies program in Curriculum Instruction and Leadership. My teaching situation was still my major concern and I needed a solution. Returning to another school-year with the same situation was quite dreadful. In September of 2013, I was introduced briefly to Flipped Classroom (FC) in a technology in-service. In a FC, teachers can preload lecture knowledge based content in form of instructional videos before students get to class. Face-to-face time is used to personalize meaningful learning activities and increase interaction between students and teachers. The concept was quite intriguing and I started doing more research in this area of technology. As a technology teacher in media, making instructional video for teaching is not a difficult task. I made a lot of videos in the past but there was not one with me as a main character. Time was still a big factor to get FC started in my high school classes. After a couple of months, I managed to record a small collection of

videos for one of my classes during the beginning of this school-year. I planned to incorporate these videos in one of the projects and test to see if they can help solve my teaching situation. Due to ethical issues relating to the capstone paper, I was not able to implement FC in this school-year. I postponed the implementation of FC to my classes and will implement FC in all of my high school classes starting next school-year in 2014-15.

This capstone project allows me the opportunity to research the benefits and limitations of FC teaching pedagogy. It encourages me to research different ways of making FC videos with a combination of equipment and software products. My research question is “how can FC be applied as a technology aid to make 21st Century Learning a success?”. There are two main components to my research question:

1. Is application of emerging technologies necessary for success in 21st Century Learning?
2. Is FC an appropriate tool to create success in 21st Century classroom?

In my literature review, I explored each component separately and made a connection between FC and 21st Century Learning. These two conclusions derive from research literature:

1. Emerging technology that can change the way students learn. Our current system needs a technology platform that supports collaboration, communication and sharing to enable the changes. Until then, our schools will be transformed into a networked learning environment. Researchers encourage schools to adopt new technological tool and applications as standards in our learning system (Parsons & Beauchamp, 2012).
Beetham, McGill and Littlejohn (2009, p.9) states that education needs to change fundamentally. We need to use digital technologies and networks as a mean to work, think, communicate and learn.

2. Qualitative and quantitative research support the integration of FC in school. Research shows an increased in grades between the periods of before and after the implementation of FC. It is possible that FC can be applied as a technology aid in 21st Century Learning. If schools and administrators adopt FC as a technological tool, students and educators can benefit greatly from its model. It provides advantages to our students such as using digital technology as a tool to work, think, communicate and learn. At the same time it allows teachers to create meaningful learning activities that are personalized and differentiated for students. There are some of the concerns for FC such as boring video lectures and equal access to online videos for students from low income families. In addition, not every student can learn successfully from video lectures. There was no research on the application of FC as Emerging Technology in 21st Century Learning classroom. I suggest to further research on whether FC serves its intended purpose for the needs of 21st Century classrooms.

Significance of the study

My study focuses on the FC technological teaching pedagogy that helps educators simplify the teaching process and enhance the learning experience for students in 21st Century Learning. I hope to use my personal journey through an autoethnographic research method to educate the readers about the process of creating and implementing FC project in a classroom.

The autoethnography approach to research and writing describes my personal experience in order to understand and apply FC teaching method in my classroom. My rationale for choosing this research method is because it is a way to produce meaningful research in personal experience (Ellis, Adams & Bochner, 2011). My study breaks down the topic of FC and

how it can be applied as a technological aid in 21st Century Learning. In this study I explored the research question by creating a FC project for my Communication Technology Photography 20. I described in details the steps to create the project in regards to the equipment, footage, software, distribution and implementation of the project through my virtual classroom and YouTube channel.

My study guide has all the tools, tips and process for teachers who may be interested in trying out FC in his/her class. The beginners guide describes the easiest steps and process to create and launch a simple FC project. In a later discussion, I included advanced tools for those who would like to create high quality FC videos. Since the guides to FC was written in an autoethnographic style, I also described my thoughts and feelings as I experience the process of creating FC for the very first time. I hope my personal experience, thoughts and the mistakes that I made can shorten the path to create a successful FC project.

In addition, I also describe the process of collecting data if I was going to carry out the study. I would record daily journals using EverNote software application for online and multi-platforms access. I would also conduct survey to obtain opinions about their experience on FC project. The data collected from these sources would be analyzed and interpreted in a six steps process (O'Leary, 2014). The final step is to produce a report that is aesthetic and evocative of personal and interpersonal experience (Ellis & Bochner, 2011) so I can read a wider audience that traditional research usually disregards (Bochner, 1997; Ellis, 1995; Goodall, 2006; Hooks, 1994, as cited in Ellis, Adams and Bochner, 2011).

Organization of capstone project

This capstone project is organized in four chapters. Chapter One is the introduction of the project. It includes an introduction to my research question on FC in 21st Century Learning followed by my personal educational context as an experience Career and Technology Studies teachers with a teaching focus on Communication Technology and Design Studies grade seven to twelve in a small junior/high school. The introduction contains brief background to my proposal of the study in autoethnography research method and the significance of my study in FC.

Chapter Two follows with the findings of literature review on the success and concerns of FC implementation in classroom. I explored literature review on the need of emerging technologies application in 21st Century Learning. The literature review concludes with the connection of FC as an emerging technological solution to success in 21st Century Learning.

Chapter 3 is the proposal of my study on FC as a technological tool to make 21st Century Learning a success. I created a FC project and used autoethnography research method lead the readers through my journey of creating the first FC project. The personal experience, thoughts, tips, beginners and advanced user guides to FC can benefit educators who want to explore FC as a technological aid in their classroom. Chapter 4 concludes my capstone project with the two discussions. The first discussion is on the aspects that have been reinforced as a result of my experience throughout my MEd program. The second discussion is on the influence of my graduate experience in the future for my professional career, my school and district.

Chapter 2: Literature Review

An introduction of emerging technologies in 21st Century Learning

The rise to new curriculum models in the 21st century resulted from the pressure to produce graduates with skills and knowledge that is work-ready. The influence of emerging technology approach offer learning opportunities that are exciting and challenging for students. The permeation of the technologies mean changes to institutional infrastructure and ways of teaching.

Students profile is far more diverse compared to the past and there is an obvious increase in multiculturalism within our student population (Gosper & Ifenthaler, 2013). Students introduce diversity in cultural background, academic experience and prior knowledge to the learning environment. They provide multiple perspectives on attitudes about learning. Institutions and teachers respond to these challenges through the adoption of digital technologies (Gosper & Ifenthaler, 2013). Web-based lectures and various tools such as face-to-face lectures and tutorials provide flexible learning environment. The flexible teaching environment provide opportunities for students to form communities of practice and construct knowledge in a collaborative environment. Flipped Classroom (FC) is a blend between direct instruction and constructivism (Bergmann, et. al., 2011). FC teachers are facilitators who guide students on their own learning. Teachers can preload video lectures for students to watch the knowledge based content the day before (Bergmann & Sams, 2013). Face-to-face time in class can be used to personalize meaningful learning activities and increase interaction between students and teachers.

In the Cross-Curricular Competencies Overview (2013), it recommends teachers to integrate technology to support innovation and discovery in learning. Alberta's Cross-Curricular Competencies (2013) is an interrelated set of attitudes, skills and knowledge needed for successful learning. As a result, Alberta's students can use technology to support their learning within a sharing community. Technology is one of the literacies identified in the multiple literacies list such as the ability to read, write, calculate and use technology and media. The integration of multiple literacies support their lifelong learning, working and living. FC is a model for teachers to incorporate technology in their classroom. FC isn't an online course or to replace teachers with videos (Bergmann, et. al., 2011). The authors define FC as a blend between direct instruction and constructivism. Teachers are facilitators who guide students on their own learning and videos are used to preload content, review and watch anytime or for absent students. Students don't work in isolation in front of the computer screen. They are engaged in a learning environment where all can get a personalized education.

There are 77% of jobs in Britain that require competencies in information and communication technology (Beetham, McGill & Littlejohn, 2009). Digital technologies offer more opportunities to learn in formal educational settings (Parsons & Beauchamp, 2012). Non-educational organizations are more aware of the potential of technology in its training (Parsons & Beauchamp, 2012). There is an increase in accessing and communicating of knowledge through images and videos. Fixed time, place, pace curriculum is not sufficient in today's society (Software & Information Industry Association, 2010). The Foundation for Excellence in Education (2009) suggests that "digital interaction and learning through social media, the Internet, and mobile devices are a way of life for most teenagers everywhere except in education" (p.5). It

suggests that spending money to add a layer of digital learning without changing the current system is not the answer to today’s digital issues. Since digital media is a part of most teenagers’ life, Flipped Classroom can promote the interaction with digital media tools in an education setting. This implementation of FC can increase in digital literacy in students. FC is a tool that help solve the digital issues in education. However as suggested in The Foundation for Excellence in Education (2009), adding FC alone in classrooms without changing the structure of the current education system may not solve today’s digital issues. It suggests that education needs new ways of operating and transitioning into the digital age. Over 1400 participants contribute their voice in the Provincial Forum held in the fall of 2009 (Inspiring Education, 2010). Participants concluded that education system needs more than minor change. They recognized that change may be uncomfortable but it is urgent and necessary to make changes in our education system.

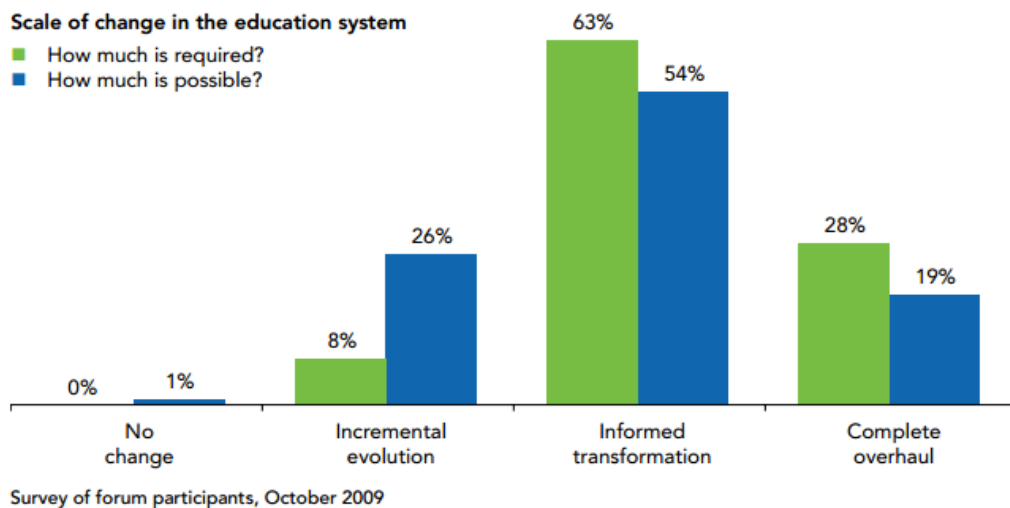


Figure 1 Retrieved from Inspiring Education: A Dialogue With Albertans, p. 16, 2010.

Five Policy Directions forms the core of Learning and Technology Policy Framework 2013 (Andrews, Dach & Lemke, 2013). Policy 1 recommends that technology can be used to support student-centred, personalize and authenticate learning for all students. Policy 2 encourage educators and other education professionals to read, review, participate in, share and apply research in evidence-based practice. This approach helps sustain and advance innovation in education. Policy 3 recommends all education professionals to develop, maintain and apply the knowledge and skill that enable them to use technology effectively, efficiently and innovatively. In Policy 4, education leaders should leverage the use of technology in support of student-centred learning. This support helps create an efficient system that cultivate innovation. The final Policy states that all students and education professionals should have access to appropriate devices, reliable infrastructure, high-speed networks and digital learning environments. Alberta Education has many initiatives such as Transform, Inspiring Education and etc. These initiatives create a transition between the current education system into the digital age. FC is one of the technology solutions that can lead to digital literacy by including digital technology in educational setting.

The integration of emerging technology in educational setting is important to 21st Century Learning. It offers exciting and challenging learning opportunities to diverse multicultural groups of students. The flexible teaching environment promotes collaborative learning environment where students can share and co-construct knowledge. FC is an emerging technology tool that allows teachers to meet these needs. Along with the application of emerging technologies in classroom, education needs a new way to operate and transition into the digital age.

The Importance of Emerging Technologies in Education

Oblinger commented that "it is not the technology that is more important but the activity that it enables: the activity, not the technology, is what advances learning" (Oblinger & Oblinger, 2005, p. 74). Kienhuis and Chester found that the introduction of more resources and flexibility into a traditional teaching/lecture model was not sufficient to engage students (Kienhuis & Chester, 2013). These changes are not enough to reverse the role of teachers and learners in a classroom. In order to take advantage of the emergence of open education resources Marshall proposes an open approach in the new curriculum design (Marshall, 2013). Hedberg and Stevenson emphasized the power of new technologies to support simultaneous delivery of multiple topics and learning activities. This pedagogical approach break away from the traditional linear pedagogy (Hedberg & Stevenson, 2013). FC enables the activities that promote digital literacy. Teachers need to have an understanding of the new pedagogical approach in curriculum redesign as proposed by Marshall (2013) in order to benefit from the new technology. This understanding of the pedagogy help teachers design activities that use the FC technology to meet the need of their students. Technology is a bridge that connect theory and practice. They bring new levels of authenticity and collaboration to the learning experience (Gosper & Ifenthaler, 2013).

The use of technology and community-based activities in Personalized Learning enriches learning experiences and enable students to apply their learning in real-life contexts (Sarich, 2010). The author defines Personalized Learning as opportunities for teachers to meet students' diverse learning needs. Learning takes place in flexible timing and pacing with a wide varieties of learning supports. FC is a great tool for Personalized Learning. FC allows advanced students to

go through the knowledge based resources at their own pace while teachers can dedicate their time to help students who need one-on-one help (Sarich, 2010). Advance students can also take on an active role in learning by helping less advance students after they have mastered the knowledge. Technology will continue to evolve and help education to become more flexible and adaptable in digital-based resources. These resources are tools to provide Alberta students with high-quality 21st century learning with flexible timing and pacing in a variety of learning environments (Sarich, 2010).

Learning while utilizing FC methods is less constrained by time space and environments. Van den Brande (1993, p.2) commented that flexible learning helps learners learn what they want to learn, how they want to learn and when they want to learn. The term Flexible learning refers to learning that can take place anywhere, usually at a time, pace and place that suits the learner (Goodyear, n.d.). FC holds characteristics of Flexible learning. For example, students who missed classes due to circumstances can continue their study during the absent time because FC videos are available on the web. If studying during this time is not possible, students can catch-up on the materials when they get back to school. Flexible pacing allow all students to move ahead when they master content and skills or move at their pace without pressure. Flexible pacing can be achieved by continuing to move ahead as they master content and skills, enrolling in higher grade levels courses, skipping grade or gaining entrance to school earlier than regular age.

Personalized Learning allows teachers to meet students' diverse learning needs. FC is a technological tool that support simultaneous delivery of multiple topics and activities. This tool supports the non-linear pedagogical approach in delivering multiple topics and learning

activities. This type of Flexible Learning helps learners learn anywhere, anytime, any pace and any place that suits the learners.

Recommendations for Teachers in Application of Emerging Technologies

Maor (2006) points out the tension between technology and pedagogy. When time is scarce and resources/support are not within reach, teachers often default to making decisions based on their own conceptions. The decisions are based on the availability of technologies and the comfortableness of the individual with technologies. This approach can limit teachers to design curriculum that fail to serve the intended purpose of the technology. It's not the technology that doesn't do the job. Sometimes it's lack of understanding from teachers on how to use the technologies with purpose. Ellis and Goodyear (2010) commented: "When teachers do not focus on the development of student understanding and have poor conceptions of learning technologies, they tend to use e-learning as a way of delivering information and bolting it on to course design in an unreflective way" (p.104). FC is not an electronic automated system where the videos teach students the required skills. Teachers need to understand the pedagogy in the new curriculum and use FC as a technology tool to design the learning experience that reaches more students.

Abel (2007) suggests that activities and technologies must be aligned in order to access high-order thinking. For example, simulations can help students understand complex concepts. In contrast, remembering and understanding factual and simple concepts is best achieved with activities with clear objectives and immediate feedback. Therefore, it's important that teachers understand the intent purpose of the technologies to ensure the alignment of aims, activities and technologies. In FC, teachers can use online videos to preload factual knowledge prior to the

class time. Class time is used to collaborate on complex activities. The clear purpose of the use in technologies help refocus the choice of technologies back on the learners and the learning process rather than on the technologies and their availability.

Digital technologies have the potential to help students become “engaged thinkers, global citizens and active learning participants in collaborative social learning environments” (Sarich, 2010). Teachers need to learn how to use technological tools effectively in order to engage students in their learning. Technology enables students to do things that would not be possible inside a traditional classrooms using traditional learning tools. With the preload of knowledge based concept from videos learned at home, face-to-face time increase interaction between students and teachers (Bergmann & Sams, 2012). Teachers are facilitators who guide students on their own learning and videos are used to preload contents, reviewed and watched anytime. Students don’t work in isolation in front of the computer screen. They are engaged in a learning environment where all can get a personalized education (Bergmann & Sams, 2012). Technology “opens up new opportunities for students to connect, explore, innovate, create and share knowledge” (Sarich, 2010).

Students can use technology to personalize their learning experiences and have more control over their own learning. Each student should have equitable access and opportunity to use technology in school and outside of school. Only then technology will be an integral part of their learning environment. Educators need to understand the impact of technologies on how students learn. Therefore, they are able to teach skillfully in all environments such as face-to-face, online and other non-traditional environments. Personalities and styles make one teacher’s classroom different than the others. FC is about moving the attention away from the

teacher and putting attention on the learners and the learning (Bergmann & Sams, 2012). For example, FC helps busy students (e.g. student council, competitive athletes) catch up or get ahead. Advanced students don't have to wait for slow students to catch up and slow students don't have to ask for more time. Administrators can support by creating a dynamic digital learning cultures that maximize the use of media-rich resources. School needs to welcome the way students' use of technology outside and in school to meet the diverse abilities and learning styles of individuals and in groups (Parsons & Beauchamp, 2012). We need to embrace the digital culture instead of fighting against it.

In Alberta Teachers' Association's (2011) study, it provides data about Alberta teachers' efforts in flexible learning. There are three categories of flexible learning: 1) digital technologies in face-to-face learning environments; 2) digital technologies as primary tool in online learning environment; and 3) distant learning. The teachers involved in the study used digital technology to personalize their teaching to create a flexible learning in time and space for students. 80 % of the participated teachers rated their flexible teaching as positive. Only 63% would recommend to others because they felt their teaching quality were deteriorating due to the increase of workload, role expansion and lack of personal boundaries. Many were concerned that "anytime access" for students created "anytime service" for teachers. Despite the skepticism, teachers and administrators were both positive about the potential of technology in making timing and spacing more flexible. The study highlights the importance of introducing the new technologies to school thoughtfully. Teachers need to receive adequate training in order for the change process to take place (Alberta Teachers' Association, 2011). Teachers need to understand the

pedagogy and use it to drive the technology. The flipped model force teachers to reflect on their practice and think of better ways to reach their students (Hertz, 2012).

Emerging technology enables students and teachers to do things that would not be possible in a traditional setting with traditional tools. Teachers need to have a clear intention of a technology before designing learning activities. The lack of understanding can lead to the misalignment between the purpose of the technology and the aims of the curriculum. FC videos are design to deliver preloaded knowledge and interactive class time should be used to deliver complex concepts. It's important to provide adequate training and introduce the new technologies to school thoughtfully for change process to take place in Alberta Education.

Conclusion - Emerging Technologies in 21st Century Learning

New emerging technology makes things possible but people can make things happen. A technology platform that support collaboration, communication and sharing is needed to enable the changes in our system. Until then, our schools will be transformed into a networked learning environment. Schools need to adopt new technological tools and applications as standards in our learning system. Students are being prepared for jobs and technologies that do not yet exist (Parsons & Beauchamp, 2012). Beetham, McGill and Littlejohn (2009, p.9) states that education needs to change fundamentally. We need to use digital technologies and networks as a mean to work, think, communicate and learn.

FC is a new emerging technology that can change the way students learn. With a good knowledge about FC model, teachers can use the technology as a better way to reach their diverse student groups. The flipped model allows personalize meaningful learning activities and increase interaction between students and teachers. It also allow communication and sharing

between students as they collaborate in a learning environment where all can get a personalized education (Bergmann & Sams, 2012).

An introduction to Flipped Classroom, a 21st Century Learning approach

I've provided the positive and negative outcomes related to research on the application of emerging technology in 21st Century Learning. In Part 2, I will focus on Flipped Classroom (FC), one of the technological solution to help teachers adapt and solve technological problems that did not exist in the past.

Definition of Flipped Classroom

Bergmann (2011) along with two co-authors reveals the myths and reality around FC. They mentioned that most people think flipped class is all about the videos. It's a backward design because students watch videos for lecture assignments the day before. Teachers can preload lecture knowledge based content before students get to class. Face-to-face time can be used to personalize meaningful learning activities and increase interaction between students and teachers. FC isn't an online course or to replace teachers with videos. The authors define FC as a blend between direct instruction and constructivism. Teachers are facilitators who guide students on their own learning and videos are used to preload content, review and watch anytime or for absent students. Students don't work in isolation in front of the computer screen because they can get a personalized instruction from flipped videos.

TechSmith (2012) promotes teacher Stacey Roshan on using Camtasia to record videos for her FC. In the video, Stacey claims that her students feel caught up, engage with course concepts and less anxious about exams after she flips her class. In "One Teacher's Journey"

(n.d.), teacher Crystal Kirch realized the value of flipped lectures and is able to spend more face-to-face time with her students. Hert (2012) recommends an average educator should have knowledge about FC model before consulting with sales vendors or they may walk away with misrepresented information. In this case, TechSmith, an onscreen recording software company, provides content on methodology and pedagogy that they have consulted with educators. TechSmith introduced Snagit as a user friendly introductory software program that allows users to record videos and images onscreen (Image and Video Screen Capture, n.d.). With step-by-step tutorials, free tech support and affordable, one can easily create quick videos for their FC.

Flipped Classroom's pros and cons

There's no such thing as FC because the term was popularized by media (Bergmann & Sams, 2012). The teacher must ensure the appropriateness before using video as an instructional tool for their lessons. If a video is not appropriate, the authors recommend not to make videos and call it flipped lesson. Teachers can make lecture videos about certain concepts and let students move through the units at their own pace (Hertz, 2012).

I will use Bergmann & Sams (2012)'s journey as an illustrative example of the effectiveness of FC. As an average teacher, the authors noticed a few problems in their teaching such as hard-working students who struggle to understand concepts taught in the lecture, sport students who miss class due to games and A+ students who play by the rules but don't quite understand the concept. In the attempt to fix these problems, they started out by making and posting lecture videos online for students who missed class. As a result, teachers from all over the world including new teachers and substitute teachers expressed gratitude for sharing

resources on their website. The authors took one step further in addition to their success by prerecording all of their lectures. Students viewed the videos as homework and they used the entire class period to help students understand the concepts watched. They noticed that they had more problem solving time in class and concepts were covered in shorter amount of time. They kept record of the experiment on implementing the FC and were convinced that FC is a better model than the traditional approach.

The success was so great and the neighbouring school districts invited the authors to present their FC teaching method to the teachers. The PD was a success followed by an invitation to the news station, speaking at conferences and training educators at schools and in higher education centres all over the world. The authors took one step further by using FC as a tool to personalize learning for their students. Students don't have to watch the same video on the same night and complete the same activities in class. They notice advanced students took shorter amount of time to master all the concepts. As a result, they set up a system that had elements of a mastery-learning environment where students progress through the course as they master the materials.

The authors conclude that there are no specific method to implement FC. Every teacher does it differently. Personalities and styles make one teacher's classroom different than the others. FC is about moving the attention away from the teacher and putting attention on the learners and the learning. Hert (2012) raises a few concerns about FC approach such as computer access after-hours for all students. Spending long hours in front of a screen every night watching the required videos when teachers flip their classes is not 100% effective because not everyone learns best through watching videos. Spencer, Wolf & Sams (2011) also notes that

in addition to pre-recording videos, in-class work should include elements such as inquired-based activities and project based learning.

Why Flipped Classroom teaching method is important in 21st Century Learning

Bergmann & Sams (2012) identified many benefits in flipping one's classroom. Today's students grow up with the always-on digital world. They feel that they need to dumb down when they are in school because school bans smart devices. We need to embrace the digital culture instead of fighting against it. Teachers need to understand the pedagogy and use it to drive the technology. The flipped model forces teachers to reflect on their practice and think of better ways to reach their students (Hertz, 2012). FC helps busy students (e.g. student council, competitive athletes) catch up or get ahead. The approach allows teachers to reach all students, not just for the bright students who dominate the conversation in in-class activity.

Teachers have time to help those who need the most including IPP/PLP students. These students can pause, rewind and replay the videos to help them understand better on the important concepts. Students have more control over their learning. Therefore FC is a method to personalize contents for all students. Advanced students don't have to wait for slow students to catch up and slow students don't have to ask for more time. The speed is appropriate for all. Flipping allow teachers to leverage technology to increase the interaction between teacher to students, students to students and allow teachers to get to know their students better. Teachers have time to influence students and being a positive adult role model in their lives. Small groups working on inquiry based projects allow students to help and learn from one another.

Flipping allows differentiated instructions to reach students in broad range of abilities. If students can work at their own pace and demonstrate mastery of learning, teachers can modify appropriate tasks that are best fitted for them. It's virtually impossible to differentiate 10 different lessons to a class of 35 students using the traditional approach. Classroom management evolves into a different form because teachers don't stand in front of the class talking at the students. Bergmann & Sams (2012) receives praises from parents for how much they love the videos because they can watch along with their children. The conversation with the parents also change from the questioning the child's behaviour in class to focusing on the child's learning and to become better learners. Flipping allow parents to access the content and therefore make teaching transparent. This eliminates incorrect perspective of parents to the school. It takes time to build the video library and the videos can help absent teachers and substitute teachers tremendously. Once there's enough videos to cover the content of a course, teachers can develop a flipped class mastery program where students can demonstrate competency by mastering the course materials at their own pace (Bergmann & Sams, 2012).

Characteristics of a good flipped class and a good flipped lesson

Bergmann & Sams (2012) recommends the following characteristics in a flipped lesson:

- Video lectures deliver direct instruction. Teachers can make their own videos or use others' videos.
- The video should be between 10 to 15 minutes. Smaller segmented videos help students learn better.

- Students take notes from the video. To check for understanding of content of the video, teacher can set up a blog for students to upload their comments and interact with one another. Alternatively, teachers can use pre-quiz or start a class discussion by having students to ask their teacher an interesting question about the video.

Bennett et. al. (2011) recommends the following characteristics in a flipped class:

- Student led discussions on content brought in from outside of class. The discussions reflect higher order critical thinking.
- Students make decisions to collaborate on the various simultaneous discussion that interest them.
- Students learn content within the real-world context scenarios.
- Active learning students take ownership on the learning material. Self-directed students lead themselves and others. Students don't need prompt from the teacher to form spontaneous collaborative learning.
- Students have the freedom to go beyond the traditional scope of the course.

Flipped Classroom Research & Data Interpretation

Quantitative and rigorous qualitative research on FC is limited but there is a great deal of research that supports the key elements of the model (Hamdan, et. al., 2013). I will highlight key features concluded from literature researches that support FC.

In 2007-08 Bergmann and Sams (2012) used participatory action research in their chemistry classes to investigate the effectiveness of FC. They used the same exams before and after they flipped their classes except for two units. See Table 8.3 below. As a result, the group

of students who were taught in the FC scores almost similar to previous years' students who were taught in the traditional lecture model. The results doesn't seem to indicate the effectiveness of the FC model but they were able to help lower performing students perform at similar level to higher performing students. They concluded that FC worked and most students were receptive and excelled with this model.

TABLE 8.3 Comparison of Class Test Scores

	2006-07 Students Average Score	2007-08 Students Average Score
Unit 1 Exam	Different exam given	
Unit 2 Exam	78.7%	78.7%
Unit 3 Exam	84.5%	86.8%
Unit 4 Exam	81.6%	80.7%
Unit 5 Exam	Different exam given	
Semester 1 Final	67.9%	66.2%
Unit 6 Exam	75.1%	74.1%
Unit 7 Exam	89.0%	81.2%
Final Exam	73.9%	71.7%

Figure 2 Flip Your Classroom: Reach Every Student in Every Class Every Day, p. 105, by J. Bergmann & A. Sams, 2012.

Five faculties from Dubai Women's Campus with experience in FC participated in the survey (Amiri, et. al., 2013). Data collected for this research used both quantitative and

Qs	Agree	Discussion
1	80%	Student own the learning and have the choice to choose the best place to learn
2	80%	Students come with questions to class rather than taking homework with them
3	75%	Student can learn at the convenience of their home and revise
4	70%	Flipped classroom enhance the relationship between student and teacher.
5	80%	Each lesson has more than one stage "teaching", it has watching the lecture, asking questions, and doing activities.
6	80%	Students can go through the lecture many times over...till their concepts are clear.
7	80%	Anytime students can access the contents.
8	80%	Watching the lecture individually improve face to face time in the class.
9	80%	Student can study at day or at night
10	85%	Students can review the video several times as they wish to understand the lesson.

11	85%	It's easier for students to take notes.
12	98%	Each student can share doing flipped classroom, since they have iPad provided to them from UAE government.
13	80%	Students would not miss any classes which will improve their performance and understanding.
14	80%	All the students have convenient class time for sharing information.

Table.2 Questionnaire's results

Figure 3 Flipped Learning & Democratic Education, by T.H. Driscoll, 2012.

qualitative methods to identify advantages and disadvantages of using FC. As a result, the majority (70 - 85%) of the participants agreed that FC provides a better learning environment because it helps students take high quality notes, save time for students and enable better understanding in students' learning. Students lead to better performance, more independence because it gives them time flexibility and a collaborative environment for sharing and discussing idea. To get opinions from students' perspective, the researchers conducted a survey of 14 questions on 100 students from different courses that had experience of having FC. The aim was to find out whether FC is more effective than the traditional classroom. The results shown in the table 2 below about students' opinion were all positive. To validate the study, they interviewed 3 experts to confirm the results.

Driscoll (2012) also conducted a survey on 26 educators and 203 students in 2012-13 school-year on how FC can promote democratic education. His study yield results that support the findings from Amiri et. al. (2013)'s research. Overall FC helps increase students' motivation and strengthens the relationship between students and teacher. Roehl, Reddy & Shannon (2013) recognize FC's values such as developing higher order thinking skills and creativity for students. Communication and collaboration are transferable skills when students become adults. The authors conclude that FC can create pathway toward powerful learning outcomes such as retention of knowledge and in-depth understanding of knowledge for future education.

Bishop & Verleger (2013) researched through 24 studies of high school and higher education students related to the FC. Despite differences among the researches, the reports conclude that students' opinions were generally positive but there were a few students who strongly dislike the change. Students who watched video lectures are more prepared than the

ones with textbook readings. Pre-class quiz was a highly successful practice. Students preferred live lectures than video and short video. They also preferred shorter videos. FC results in an increase in performance of 21% on exam questions. The results seems to be encouraging in implementing FC. The research noticed that in-class activities still taught in traditional lecture format supplementing the video lectures.

McCammon & Parker (2014) promotes the idea that video lectures are more efficient in delivering content than live lectures. He completed a survey of 127 teachers from different school levels with varying years of teaching experience. The results showed that live lecture takes more time than video lecture because of the 5 common reasons: answering student questions, classroom management, other interruptions and pausing for note taking. Table below show an example of the results in high school classes.

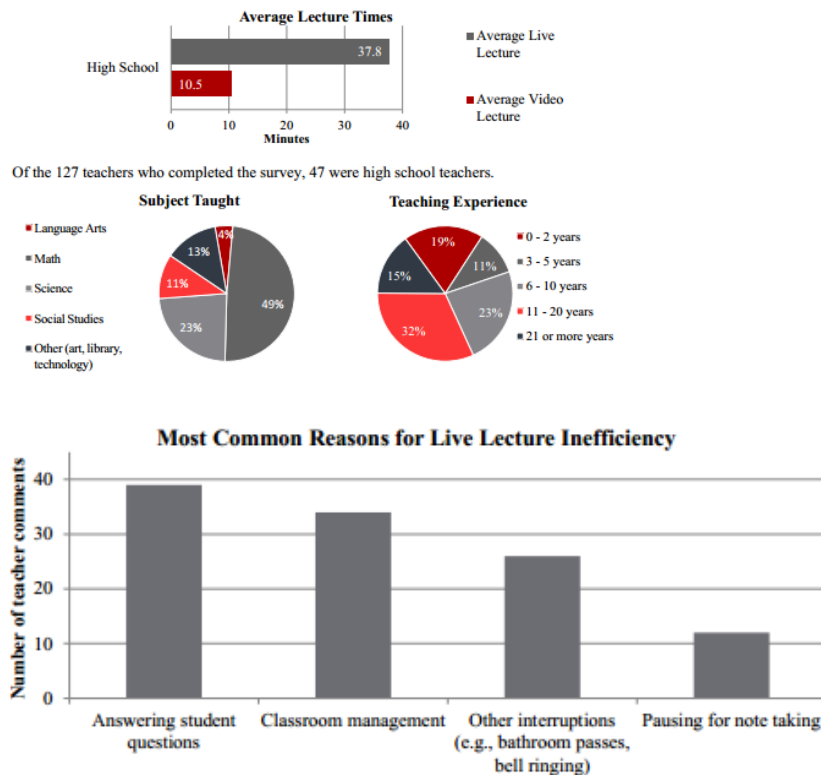


Figure 4 Live Lecture versus Video Lecture, by L. McCammon & B. Parker, 2014.

Speak Up online surveys in 2013 by over 403,000 K-12 students, parents, teachers, administrators and community members participated in the national education non-profit organization Project Tomorrow and Flipped Learning Network. Specific questions were asked on the flipped learning experience. The results were released in 2014. 15% of teachers and 40% of administrators were interested in trying flipped learning. 25% of district administrators found that flipped learning had a significant impact on transforming teaching and learning in their district. There's a general agreement that computer accessibility and making/finding/utilizing high quality videos are hindrances that kept them from flipping their classrooms. Three-quarters of students agreed that FC is a good learning method in new digital learning trends. Speak Up reports recommend that flipped learning should be taken very seriously by teachers and administrators based on students' reflections.

Johnson (2013) conducted a survey on three high school math classrooms to examine students' perceptions of the FC. The results revealed three major findings: students have less homework in FC, they enjoyed learning in a FC environment and video lectures in condensed lessons were beneficial for students. In addition to FC, teachers also support problem-based inquiry, differentiation and assessment for learning. Johnson (2013) recommends to consider improvement in the following areas: interactive instructional videos, increased in-class learning activities and alterations to assessment.

The literature review indicates that there is little empirical research on the effects of FC on student achievement. However, there are evidence of teacher reports on student achievement after adopting the model (Hamdan, et. al., 2013). In the case study of Clintondale High School, the implementation of FC started in 2009. In 2010 they flipped 9th grade and all

grades in 2011. The results from the tables below shows a major drop in discipline cases, grade 9 failure rates in 4 core subjects and a noticeable increase on Michigan Merit Exam. FC for all grades didn't impose significant costs to create a system that allow teachers to present best content to all students at all times.

Clintondale High School 9th Grade Discipline Cases



Clintondale High School 9th Grade Failure Rates

	Before (2009)	After (2010)
Math	44%	13%
Language Arts	52%	19%
Science	41%	19%
Social Studies	28%	9%

Clintondale High School Michigan Merit Exam Scores

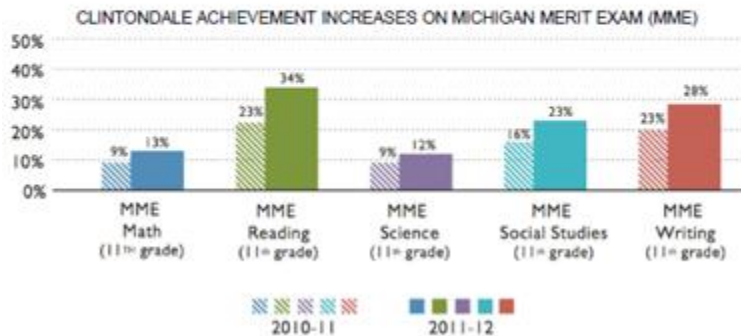


Figure 5 The Flipped Learning Model: A White Paper Based on the Literature Review Titled A Review of Flipped Learning, p. 8, by N. Hamdan et. al., 2013.

In the case study of Byron (MN) High School, only 29.9% passed the state math test in 2006. After flipping their math classrooms students' engagement increased and exceed expectations. In 2011, 73.8% of student passed the state math test versus 65.6% in 2010. By

2012, 86.6% seniors completed 4 or more credits of math. In 2010, Byron High School was designated a National Blue Ribbon School and also won the Intel School of Distinction award for High School Mathematics in 2011.

Cynthia Brame (2013), Centre for Teaching Assistant Director published on her article results from Mazur and colleagues study on FC. The study of 4458 students in 48 courses yielded evidence of learning gains by almost two standard deviation higher than those observed in the traditional classroom. She also mentioned another study conducted by Carl Wieman and his colleagues. The results also produced significant learning gains (Brame, 2013).

Brown (2012) conducted a phenomenological study on the experience of instructors who adopted the FC model in their undergraduate classroom-based courses. The study started from specific needs of college students who need more participation in their education. The semi-structured individual interviews were recorded and transcribed. The study found that the instructors enjoyed experimenting with new ways to teach. FC transformed their role and affected drastically in their instructional model. Many positive results to both students and instructors are similar to findings from Amiri et. al. (2013).

Lasry, Dugdale & Charles (2014) wanted to better prepare their students for class but accidentally flipped their classroom. Their article written in narrative style described their experience of a FC. They weren't aware of the results such as better understanding of concepts taught to students, students' enthusiasm about video homework, increased in engagement of students during in-class discussion and flipped their understanding of teaching and learning. They also found that students can be engaged by lectures.

Concerns about Flipped Classroom

Hamdan et. al. (2013) commented that FC works because of the delivering direct instruction in a different environment not the videos when skeptics expressed concerns about little research done on FC. Teachers and others believed that we shouldn't undervalue the power of good, engaging, face-to-face Socratic teaching (Hamdan, et. al., 2013). Teachers' support is still there but their role changes to being facilitators who observe, provide feedback and assess for learning. In the future, video lecture will be outsourced to mediocre, low-cost teachers to replace highly effective teachers. Boring lectures can be delivered digitally as well as face-to-face. Therefore teachers need to be trained to engage students. Educators should stay away from the mass-produced, cheaply made videos for FC. It's recommended that teachers make their own videos for their own classes. This recommendation doesn't limit teachers to find great instruction produced by others such as those found on Khan Academy or TED-Ed.

Village Pharm is the model that used FC concepts to deliver content to pharmacy students and teach them professional skills such as communication, empathy, cultural and ethical awareness expected of health professionals. Data collection for this research involved personal reflections of the instructors and the students. Schneider et. al. (2013)'s study revealed that the pharmaceuticals course in its traditional format works better for students. Many educators didn't seem to adopt this teaching method. It was evident that students didn't develop critical thinking and communication skills to be able to apply their knowledge in real settings. The research indicates students' discomfort in the new teaching method because they didn't know how to study for exams. The researchers found that it's important to support students in adapting to new approaches and cater for different learning styles. Whenever

possible, both video and printed materials should be made available to varying learning needs.

The information supplied in the videos shouldn't be a replica of the entire live lecture.

Bergmann and Sams (2012) notes that FC is appropriate for certain lessons or units of certain subjects and levels. FC may not be appropriate for every teachers, students or levels. The introduction of new teaching method such as FC requires the shift in both teachers and students (Roehl, Reddy & Shannon, 2013). Teachers must be willing to experiment with alternative strategies and reflect on their teaching effectiveness. Students also need time to adapt to the new teaching method and recognize its values. There are some limitations identified such as the decrease in satisfaction from students over the teaching format. Students' adjustment to the new approach happened slowly. Some students were uncomfortable in participating in group learning activities because they prefer to work alone on their assignments. The change didn't receive well from students. Teachers experience difficulties in the complexity of making and posting online videos and re-recording the entire video lecture. Teachers must have high motivation to make a change to FC. There's financial limitation for school with limited resources such as computer availability and internet outside classroom. While this concern is legitimate, almost 6 out of every 10 children between the ages of 3-17 used the internet and almost 85% had access to a computer at home (Child Trends, 2012). There's a rapid increase of low-income students who can access digital content (Child Trends, 2012). They warned educators to recognize these limitations before implementing FC. Bishop & Verleger (2013) recommend additional research to examine the influence of FC on learning objectives outcomes because there's no sufficient evidence from the studies to conclude the effectiveness of FC. Bergmann & Sams (2012) recommends educators to think creatively to solve problems at hand

and pursue what is best for our students. Inequality exist because we allow it. If teachers can't create an equitable environment, then do not flip.

Conclusion about Flipped Classroom teaching method

There are obvious quantitative and qualitative research articles that support FC. The researches showed an increased in grades between the periods of before and after the implementation of FC. Students can get Personalized Learning in flexible learning environment. FC supports higher order thinking skills and creativity for students. It's also a great tool for differentiation. Besides the benefits, there are a few drawbacks such as some educators didn't like the FC concepts and some students didn't like learning from videos. There are limitations of FC in certain units of studies and teachers need apply FC to appropriate lessons or units of certain subjects and levels. Teachers need to have high motivation to make the change because they may experience difficulties in the process of making and posting videos or with school's limited resources for both students and educators.

There are pros and cons to emerging technologies. Teachers need to understand the pedagogical approach of the new curriculum redesign to make a judgement on the needs of implementing new technologies in their classroom. Educators need to realize that the traditional tools in the traditional learning settings may fail to serve our needs at certain period of time. We need to look ahead for technological tools that can solve our teaching and learning problems that didn't exist in the past.

Chapter 2 conclusion about Flipped Classroom teaching method in 21st Century Learning

With the proven success from research findings of FC in part 2 and researches on the needs of emerging technologies application in classroom in part 1, it is possible that FC can be

applied as a technology aid in 21st Century Learning. Researchers encourage schools to adopt new technological tool and applications as standards in our learning system (Parsons & Beauchamp, 2012). If schools and administrators adopt FC as a technological tool, students and educators can benefit greatly from its model. It provides advantages to our students such as using digital technology as a tool to work, think, communicate and learn. At the same time it allows teachers to create meaningful learning activities that are personalized and differentiated for students. I suggest for further research on the application of FC as Emerging Technology in 21st Century Learning classroom. We need qualitative and quantitative research that FC serves its intended purpose for the needs of 21st Century classrooms.

In Chapter 3, I will talk about my experience in creating projects for my Photography 20 class using FC model. I will talk about how I created the videos, how I would apply them in my classes and my thoughts on whether the FC projects would work for my students along with my teaching situation.

Chapter 3: Connecting Theory to Practice - How to create a Flipped Classroom project

Introduction of autoethnography as a research method

In this chapter I will use autoethnography as an approach to research and writing that describes my personal experience in order to understand and apply FC teaching methods in my classroom. My proposal is to breakdown the topic of FC and how it can be applied as a technological aid in 21st Century Learning as an autoethnography. I will define autoethnography, the benefits and limitations of this type of methodology. I will explore how it relates to my

research question, my rationale in choosing this form of research and my method of collecting research materials and data.

Autoethnography is one of many methods used in qualitative research. It's a form of writing that analyze (*graphy*) personal experience (*auto*) in order to understand cultural experience (*ethno*) (Ellis, 2004; Holman Jones, 2005). It treats research as a political, socially-just and socially-conscious act (Adams & Holman Jones, 2008). My interpretation is that I will reflect on my experience of creating FC project for Communication Technology 20 class and researching the technology behind FC videos. As I reflect on my teaching situation, I will be aware of my thoughts, feelings, and the positions throughout the research process.

This research method is appropriate for this situation because it is a way to produce meaningful research in personal experience (Ellis, Adams & Bochner, 2011). I can decide who, what, when, where and how to research based on Alberta teaching curriculum in addition to resources available in my classroom. The act of writing is meaningful and it allows the researcher to explore possibilities, motivate and aid in being in the present (Ellis, Adams & Bochner, 2011). Beside the benefits, I realize that my personal experience can influence the research process. The subjectivity of my personal opinions, emotions and influence on the research will be explored rather than ignored. This research method recognizes that different people possess different views on teaching methods such as FC and my conclusion in my research is based from my research findings in Chapter 2 literature review along with my personal teaching experience as an educator. As a qualitative researcher, I want to use this approach to produce meaningful research grounded in personal experience. This silent personal experience helps other people who are different from us empathize our way of thinking (Ellis &

Bochner, 2000). Ellis and Bochner (2000) express that the subjectivity of the research's views can be scary but it also can be the source of growth and understanding. The outcomes of self-inquiry can be very exciting.

My motivation in choosing autoethnography as a research methodology for this capstone project is to seek understanding on the technology process of how to create and implement a successful FC project in my classroom. My desire is to create a useful guide for teachers who are interested in creating flipped videos but not sure where to start or whether it is a successful project for their environment. I hope to use my personal experience to shed light on the procedure of creating a flipped video from gathering equipment, shooting footage, editing video clips and implementing it in a lesson or a project. As I go through the process of creating FC project, I will share my personal experience of successful practice and recommendations on how to make FC videos as a technology aid in 21st Century Learning classroom.

My method of data collection is to accumulate data through participation in the process of creating a FC project, recording self-observation of my activities and interviewing and surveying my involved students. There are many ways of collecting data and representing it in a diversity of ways and these are my 4 chosen ways. These includes:

1. Illustrating screenshots and links of the products that I created for FC project.
2. Sharing autoethnographer's personal opinions based on my teaching experience.
3. Sharing personal recommendations about the process and products created.
4. Sharing others successful practice in creating a FC video.

I will illuminate the process of data analysis toward the end of this chapter. I will share a collection of survey questions and how I use them to collect data from my students.

Introduction of Flipped Classroom (FC) as a project in High School Redesign

My school piloted High School Redesign and Transform projects since 2013. It initiated by the Alberta government Education in 2014. Redesigning high school aims at transforming students’ experience in school by changing the school structure, culture, pedagogy and leadership (Redesigning High School, n.d.). Every teacher in my school was called to redefine teaching and learning in response to the ten Pedagogical Shifts in the 21st Century Learning. Traditional methods of teaching was once viewed as one of the best teaching methods and is now becoming obsolete within the new generation of learners. Personalization and Flexible Learning Environments are some of the key foundational principals that guide High School Redesign (Redesigning High School, 2011).

TRANSFORM = 10 Pedagogical Shifts	
Less student-centred	More student-centred
Content-based	Competency-based
Student as recipient	Students as inquirer & creator
Topic-driven	Cross-curricular themes
Short-term assignments	Project-based learning
Memorization	Higher-level thinking
Summative assessment	Formative assessment
Competitive	Collaborative learning
Single grades	Multi-grades
One-size-fits-all	Differentiated & personalized
Print-based	Multimodal (print, visual, digital)

Figure 6 Enhancing Teacher Efficacy Through Transform in Edmonton Catholic Schools, p. 22, by S. Chevalier & R. Nixon, 2014.

With the introduction of the key foundational principals in High School Redesign within my school, I’ve experienced challenges in meeting my students’ needs pertaining to multi-level high school option classes such as Communication Technology Photography (Com Tech Photo) 10/20/30. The literature review in Chapter 2 provides rich information of what FC is, why it

matters in Inspiring Education and the qualitative/quantitative research behind its success. The information from literature suggested that the connection between FC and how it can be applied as a technology aid in 21st Century Learning. I'm convinced that FC can be a solution to my problems in my Com Tech Photo 10/20/30. This chapter will outline the process and intention of creating the FC project for my Communication Technology 20 class using FC model described in Chapter 2.

Why FC is needed in Com Tech Photo 20 class

This is my eighth year teaching Com Tech Photo option programs. When I took over this program, there was an average of thirty students taking Com Tech 10/20/30 combined in a year. At this current time, I have over 120 students. At this small junior/high school and being the only technology teacher, there aren't many options in arranging my teaching schedule. I teach high school in the morning and junior high in the afternoon. In an ideal situation, I would have Com Tech Photo 10 separate from Com Tech 20/30 courses. However, having level 10 separate from level 20/30 is not an option for me. The combined class grows bigger every year so are the number of students from each level within the same class. Level 10 is an introductory course and students at this level need more guidance from the teacher. I had no choice but expect my level 20/30 students to explore the course independently.

Com Tech courses are Career and Technology Studies courses. Students receive three credits from each level of study. Each credit is the result from the completion of a project which satisfies Alberta curriculum outcomes in conjunction with International Baccalaureate (IB) program and High School Redesign program within Transform initiative. Six years ago, IB was implemented and as of last year, Transform and High School Redesign were initiated as a pilot

program. High performing expectations for teachers at my school is at its peak in this school-year. Option Courses are voluntarily taken by students with interest. In the past, I offered three projects for each level consisting of nine projects in Com Tech Photo 10/20/30 class per semester.

As my program grew, I noticed two types of students who took this program. The first group of students loved to manipulate pictures and graphics digitally on the computer and leaving the classroom to take pictures is not a hobby for these group of students. The second group wanted little to do with computers and loved to spend the majority of their time taking pictures in different environments and working with people. Forcing the second group of students to do the activities that the first group of students love to do and vice versa is not an effective teaching method. I noticed the loss of interest and the low quality of products produced by students in the program when they are force to do projects that do not fit their style.

To solve this problem, I proposed to split the level 10 from level 20/30. This solution was not an option. The admin wanted the flexibility to place students in any level at any time Com Tech Photo is offered. In my experience, teaching students who have no interest is more difficult than managing more projects from each level at the same time. Last year I decided to offer students in level 20/30 the options to pick three projects to complete from the list of six projects. The result was unexpected. Students were a lot happier as they were able to work on projects of interest. On the downside, I had a lot of headache in keeping track with many projects. Time was also an issue when students needed to learn new skills for new projects.

Last summer, I started looking for tools that can help create solutions for my current teaching situation from the technology perspective. I was introduced to FC from a technology professional development session. The method was quite interesting and I decided to use it as my topic for graduate paper and converted one of the projects in Com Tech 20 to a flipped project. Flipped classroom is not a common practice in my school. Many teachers are aware of this teaching method but they are reluctant to try. The reasons could be the obstacles in digital fluency or there isn't evidence to convince teachers to invest time in this teaching method. Another obstacle holding teachers back is that they are very busy in implementing Transform and at the same time maintaining the standard of the International Baccalaureate program along with Alberta curriculum. In addition, the idea of getting the right equipment including hardware and software, being in front of the camera, publishing the video to the web and investing time to edit a video turns non-technological inclined teachers away from FC teaching method. It's hard to find time in a busy teaching schedule to make an instructional video.

The process of creating flipped projects for beginners

To get started, a teacher does not need extensive equipment and software. A recording device such as a handheld camcorder or a camera with video recording ability is sufficient. YouTube is a free website where individuals can create free account to upload personal videos. Each YouTube member has a channel. For example, by clicking on this link <https://www.youtube.com/> and search for 'Trang Luong', my channel will appear at this link. I store all my FC videos on my channel.

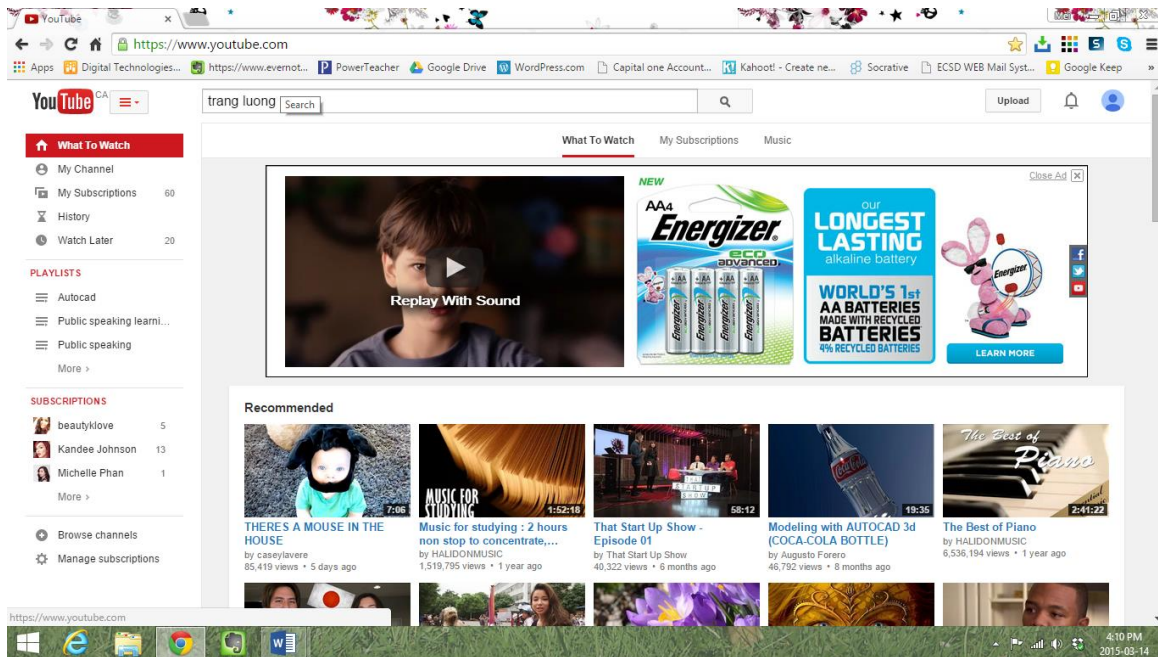


Figure 7 YouTube website's main page from <https://www.youtube.com/>

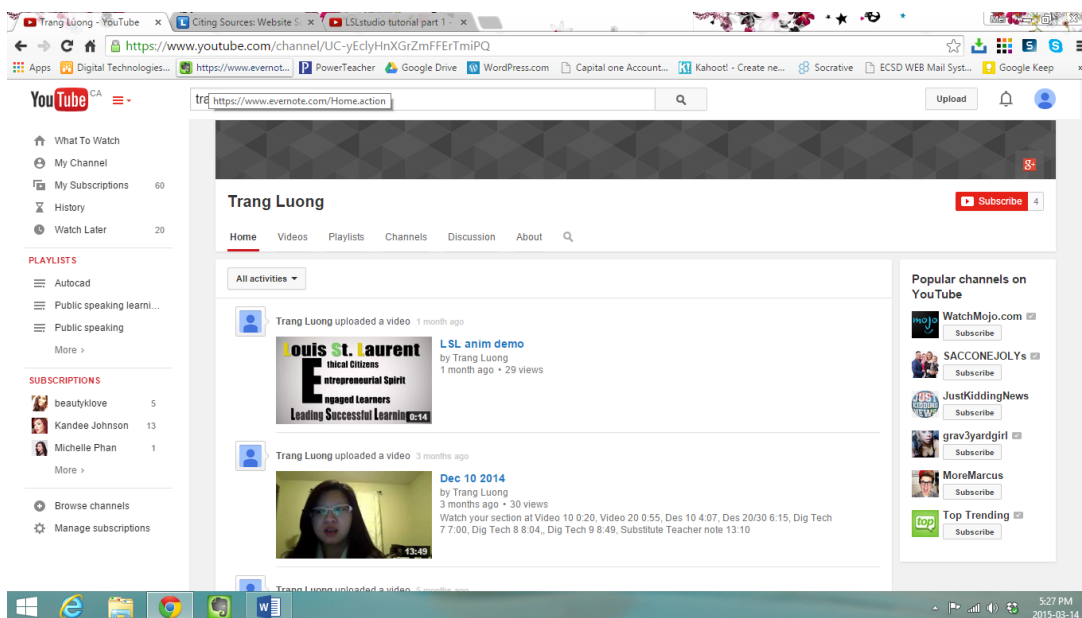


Figure 8 Trang Luong's YouTube channel from YouTube by T. Luong, 2014.

I recommend starting the first FC video with a one take style. One take style means to record the video in one shot without the aid of an editing software. My first video is 'LSL studio tutorial part 1' - Com Tech Photo 20 video introducing students to the studio lighting recording

room. This is link <https://youtu.be/V6UdWT3XCEc> (Luong, 2014). Initial stages to making this video, a volunteer student recorded the above video on a handheld camcorder while I showed the viewers the equipment in the studio. It took 5 minutes and 14 seconds to record this video. I used about 5 minutes to communicate with the volunteer student and organized the studio for a recording. After recording, I uploaded the video from the camcorder to my computer via USB cord, saved a local copy on the computer and uploaded this 5 minutes video on my YouTube channel. The uploading process to YouTube channel took about fifteen minutes on my school's high speed network.

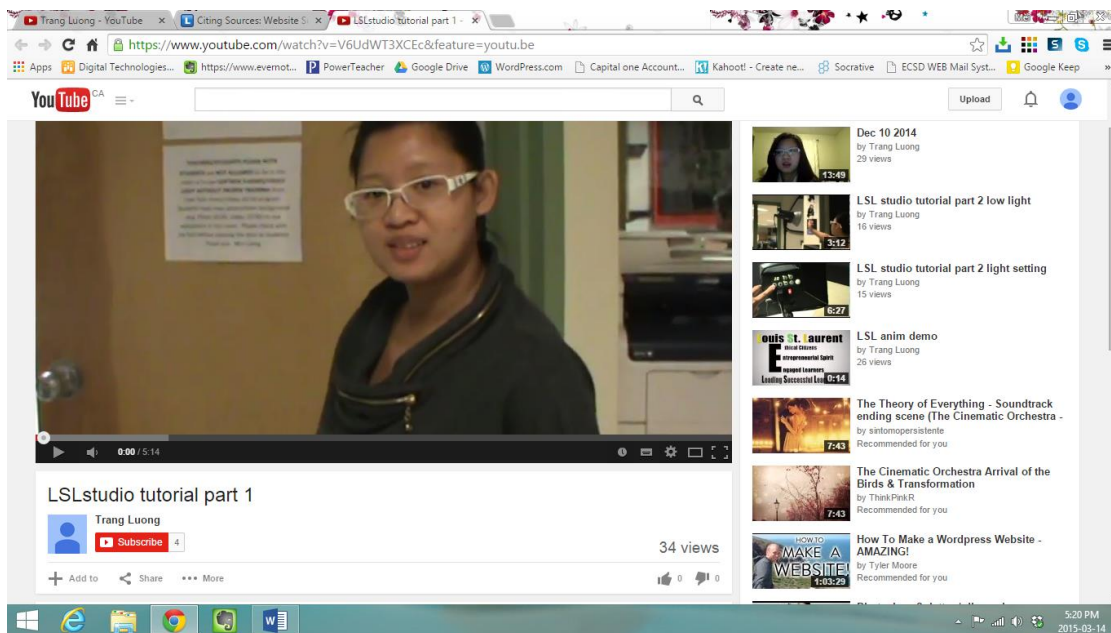


Figure 9 LSL studio tutorial part 1 from YouTube, by T. Luong, 2014.

'LSL studio tutorial part 1' tutorial video is part one of a six parts series for Com Tech Photo 20 Studio Lighting project. Students watch these video resources before we go into the studio for a live tutorial from me. This way I can preload the basic knowledge of equipment and tools on the video and use the face-to-face instructional time for meaningful activities. Meaningful activities are the selective activities that students may not be able to do successfully

without the face to face help from a teacher. It involves adjusting the lights if the pictures don't turn out right and troubleshoot common problem during a photo shoot. Formative assessment such as a casual talk with students to check for understanding of the FC video 'LSL studio tutorial part 1' is important before starting the subsequent activities.

After making the first video and realizing how easy it was to create an instructional video in a very short amount of time, I made another five part series teaching studio lighting techniques subsequently. These five videos, Rembrandt lighting, One light overhead lighting, Clamshell lighting 1, Butterfly lighting and Split Lighting, form a complete tutorial package for Com Tech Video 20 Studio Lighting project. This is the links to the five part series tutorial <https://www.youtube.com/user/meiaprill2/videos> (Luong, 2014)

To deliver the tutorial links to my students, I used a virtual classroom in Edmonton Catholic School district portal. Registered students/users can gain access to project materials on my virtual classroom from anywhere in the world. Teachers without virtual classroom can put the links on a document and deliver to students electronically via school/personal website or school local Intranet. Students open the Word document 'Luong intermediate studio tutorial' on the virtual classroom and watch these six videos at the start of the project (see Appendix A) as a preloaded assignment. To make sure students don't skip through the videos, I assigned them (see Appendix B Part 2) to do a research plan after watching the videos. In my multi-level class, Com Tech Photo 20 students can watch these videos while I teach or facilitate activities with level 10 and/or 30 students. I don't assign homework to students in my option class since the majority of option students tend to place the core subject homework assignments as their priority. Students who miss classes due to personal reasons or school activities find the videos

as a great catch-up resource. Advanced students can go through the resources at their pace and complete the project in a shorter amount of time. Advanced students can help students who are struggling or advanced students can re-teach the concepts to students who missed classes. The videos are also good for in-class review resources if students forget the concepts that were taught. They can catch-up by watching the videos anytime and anywhere. It takes less time to communicate with parents who inquire about projects/assignment for the child who misses class. All I have to do is to tell the parents the location of the project and the videos on the virtual classroom. This way consumes less time to communicate with parents than by email attachments or print out for pick up.

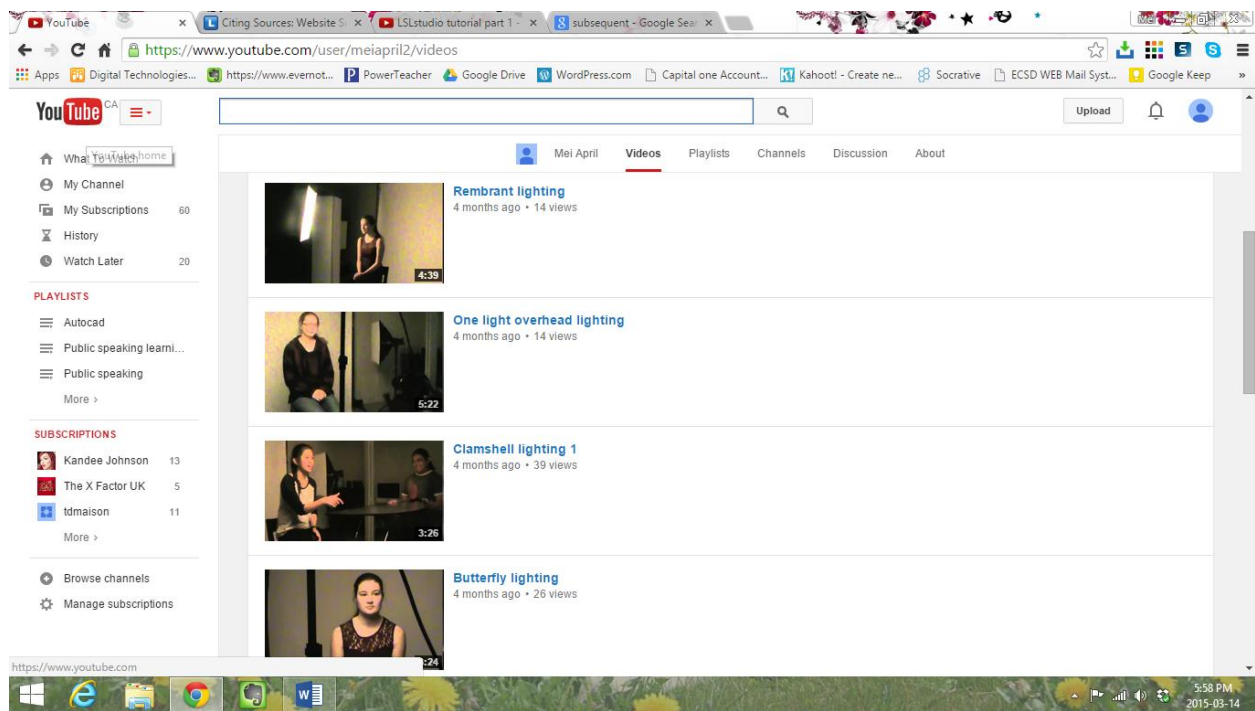


Figure 10 Mei April's YouTube channel from YouTube, by T. Luong, 2014

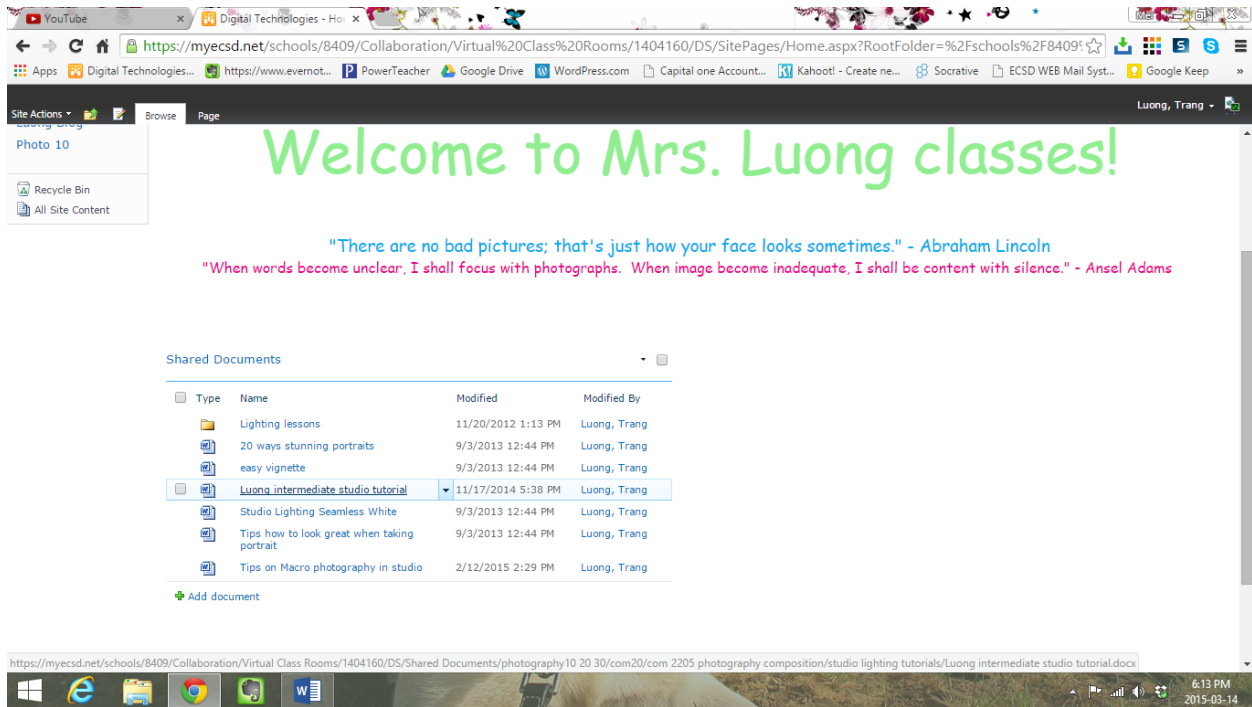


Figure 11 Mrs. Luong’s Com Tech Photo 20 Studio Lighting project on Virtual classroom from MyEcsd, by T. Luong, 2014.

It’s a misconception that teachers need to create the videos for FC. I created the six part series video to teach students basic studio lighting techniques because I wanted students to be familiar with the equipment and the studio setting in the school. FC videos can be any videos created from any sources on the web. For example, I provided students with supplement videos created by other YouTube members as additional resources (see Appendix A YouTube videos #4-9). I teach my students the inquiry skills by encouraging them to find resources on the web when they don’t find my resources useful. This flexible resource option is available only for levels 20 and 30 students because older students with more experience in Com Tech Photo area can distinguish good resources from bad resources. Given choices, students at these levels can customize their learning experience and how they want to learn. I won’t be surprised if students discover methods through research that achieve the results in an easier and more effective way

in comparison to my methods. As long as they can produce results that demonstrate learning progress, it doesn't matter if they choose to use my videos or other users' video.

I can combine the use of my videos and other available videos on YouTube to teach new concepts. For example, after watching the videos in Appendix A about acquisitions of studio lighting skills and complete the plan in Part 2 Appendix B, students can execute the plan and then watch the videos in Appendix C. The first two videos in Appendix C teach students basic concepts about RAW photo format. Students can follow the videos' instructions to do basic editing on their photos. The third video teaches advanced techniques to edit photos. Advanced students can understand the editing techniques used in the third video while other students may need a face-to-face tutorial session with me. I would assign all three videos and get some feedback from students the day after. If it's necessary, I would do a tutorial based on video 3. If my students can demonstrate understanding by applying the techniques mentioned in video 3, I would skip the live tutorial session. Formative assessment is important in FC. It gives teachers feedback on students' progress. From my teaching experience, I can tell that some students may not like to learn from videos. In 21st century learning, I believe that students should acquire the ability to learn through the inquiry of materials on the web other than receiving direct instruction from the teacher. Students who require all live instructions need times to adjust to the new way of learning. It's important that teachers use FC video to teach basic knowledge of new concept and leave advanced skills to be taught in face-to-face instruction. This way prevents students from getting frustrated when they don't understand the complex concept taught on the videos.

Other uses of 1-take video

Not only FC videos are being used for teaching basic knowledge before the complex activities in class, Dr Lodge McCammon (McCammon, 2015) promotes two other uses of 1-take video – Paperslide and lecture opener at <http://lodgemccammon.com/1-take/>. In Paperslide video, Dr. Lodge does not present in the video but he uses a series of paper with information and slides it in the frame of this video <http://lodgemccammon.com/1-take/paperslide/>. The viewer only see the instructor's hand organizing the sliding of paper in and out of the video frame. The viewer also hear the narration of instructor's voice explaining the information on the paper. Paperslide video is also a useful collaboration tool for students to make an explainer video about a concept in FC. Students have an opportunity to create interactive video using the Paperslide method. To make this video, the recording device can be any piece of recording device set on a tripod of a sturdy surface with the instructor's back facing the camera. The camera overlooks the shoulder of the instructor where he shows the paper in the frame of the video. This type of FC video is useful for instructor who do not want to be present in the video. It takes time to organize the information on pieces of paper before the recording. This type of video is informative but students need to see the instructor to feel the interaction with the video. FC teachers should consider combining the Paperslide video method to show concepts that require visual information and use 1-take video with the instructor's present for videos that require a one-t-one talk with the students. Alternatively instructor can be present in the video with the board on the side. In Lecture video at this link <http://lodgemccammon.com/1-take/lecture/>, Dr. Lodge (2015) write on the board while talking to the camera simultaneously.

1-take video is also a useful method to create a quick introductory of a lesson, unit or project. Dr. Lodge (2015) records a lesson opener on plant cell in a golf course at this link <http://lodgemccammon.com/1-take/lesson/>. The video is a short three minutes video and it takes the students to the real setting where it may not be accessible in the winter. It brings the outside world into the classroom. One take video is a great way to start for beginner FC teacher. It takes very little effort to create many videos. As FC beginner teacher gets more comfortable with recording and publishing videos, he/she can move on to advanced tools to enhance FC videos.

Advanced tools for creating FC videos

As teachers gain more experience in creating FC videos, I recommend to explore other tools such as webcam, on-screen recording software, microphone, video editing software and green screen to improve the quality of the videos. Webcam is a built-in hardware for laptop and an accessory for a desktop. Webcam comes with a software that allows users to adjust the settings of the video. When I recorded the above video, I used the school's Microsoft webcam on a desktop. Webcam can be used to record a short lesson where teachers need to only show and tell a concept in one location without the help of a volunteer. For example, I recorded a video 'Luong Mon September 29 2014 full day' for my substitute teacher explaining the lesson plan for the day <https://youtu.be/riXvUPHyAV4> (Luong, 2014). This video helps me communicate with my students directly and students can play this video on any platform such as computer, tablet or mobile phone. Substitute teachers who are not specialized in technology may find it difficult to explain assignments to students with specialized technical terms. It's time efficient to create videos using webcam if I do not need to leave my desk. It's already

mounted in its place, ready to use and Microsoft Lifecam software is user friendly. Tutorial on how to use Lifecam is available at this link <http://www.microsoft.com/hardware/en-us/help/support/how-to/webcam/started> (Microsoft, 2015). Lifecam is the software that comes with Microsoft webcam. It controls, records and plays back the recorded video and take pictures. The microphone that comes with the webcam records reasonable audio in an enclosed room given there are no external noise. The microphone can pick up all the sounds in the room. I recommend using a webcam with an external microphone for improvement in sound quality. I will talk about Blue Snowball microphone in later sections.

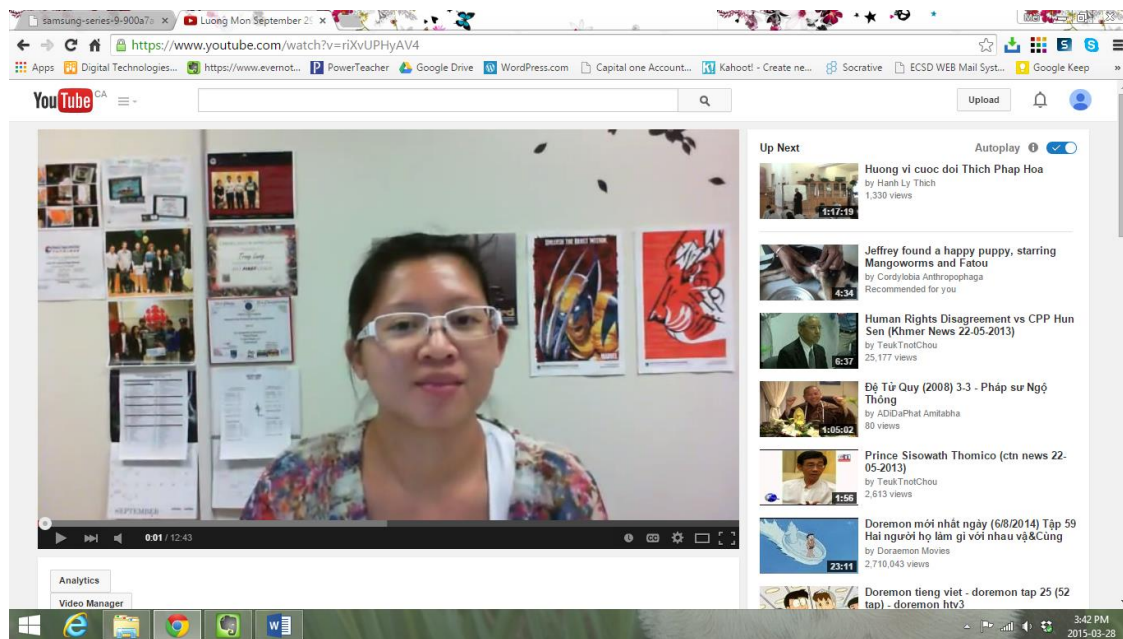


Figure 12 Luong Mon September 29 2014 full day from MyEcsd, by T. Luong, 2014.

On-screen recording software such as Snagit is used to record lessons on the screen of a computer. I recorded the video 'How to get to Virtual classroom' at this link <https://youtu.be/JquJq9Vm9Oo> (Luong, 2014). This video show students how to get to my Virtual classroom in Edmonton Catholic Schools District portal. There is a need to create this video because students often forget the lengthy path to where the location of the virtual

classroom is located. SnagIt is available for free download with fifteen days trial period at <http://www.techsmith.com/snagit.html> (TechSmith, 2015). The full version is \$49.95 per user. I purchased forty-one licences for my computer lab with an educational volume discount. SnagIt allows user to capture images and add captions. SnagIt can capture videos and edit videos using built-in video editor to cut, trim or remove multiple pieces from the video. The user can save, share or send the edited videos or images. Video captured on SnagIt can be shared to Cloud storage such as Google Drive or One Drive, Microsoft application such as Excel Word and PowerPoint, or Web application such as YouTube, Facebook, Wordpress, Twitter and Flickr. I have positive experience with SnagIt but I found the video quality is not completely crisp. When I recorded in full HD, the quality of the image is not as sharp as it is supposed to be.

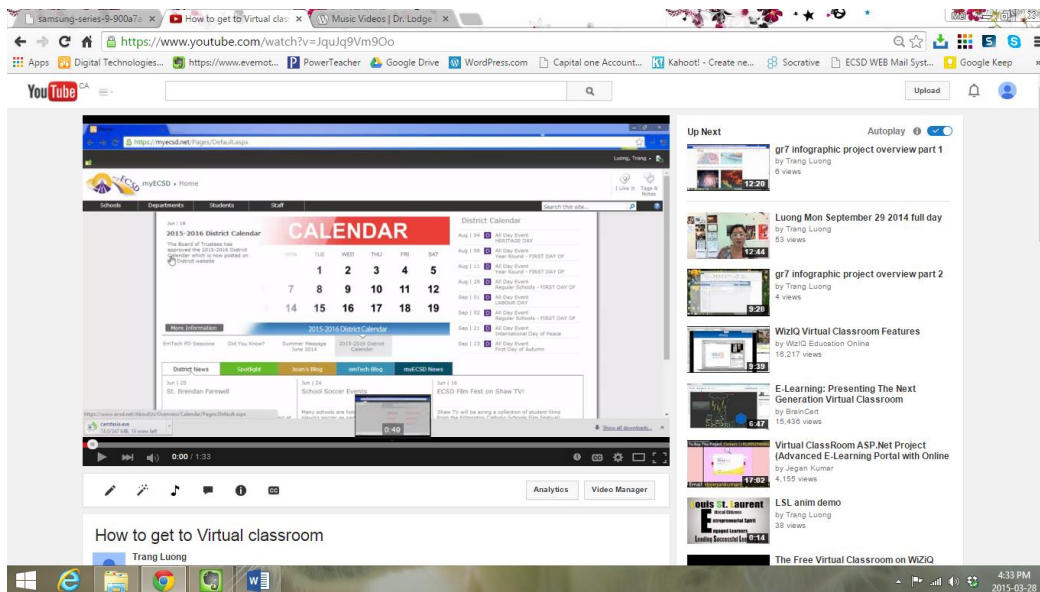


Figure 13 How to get to Virtual classroom from YouTube, by T. Luong, 2014.

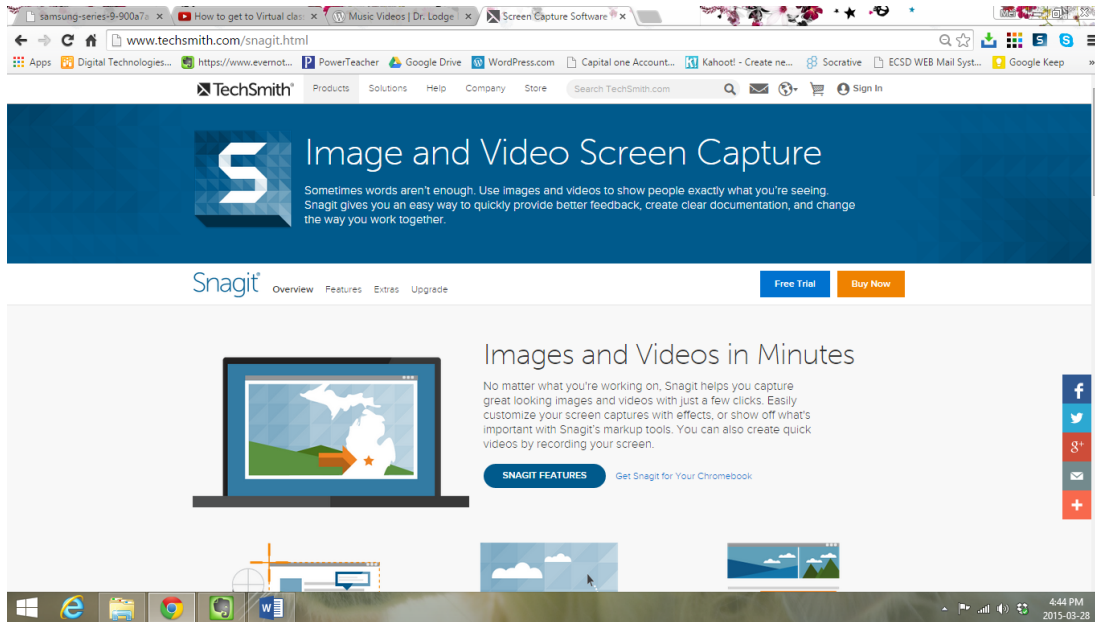


Figure 14 Snagit Image and Video Screen Capture from TechSmith, 2015.

A FC video is more effective when user uses webcam and Snagit together along with video editing software to create a video such as AutoCAD Drawing Tutorial | Practice | Create Complicated Drawings at this link <https://youtu.be/gv0KInKt7Bo> (CAD CAM PLM Design Online Training, 2012). Students who view this video can see the instructor's interaction while he shows the drawings on the screen. It's a complete experience because students can see the activity on the instructor's computer, see his face in the little video window and hear his explanation. To achieve this video, the instructor runs the webcam simultaneously with Snagit. After recording, he brings the footages into a video editing software such as Adobe Premiere Pro CC to edit the video. Snagit only allows the user to edit one layer of video. There are two layers of videos in this tutorial – the video recording of the instructor's screen and the video recording of the instructor himself. Adobe Premier Pro CC is free for 30 trials and \$19.99 per month for student and teacher licence. This link <https://helpx.adobe.com/premiere-pro/tutorials.html> is where novice users can learn how to use Adobe Premiere CC for free. Alternatively, there are

many professional Adobe tutorials on YouTube. In addition, to improve the sound quality, the user can add a USB microphone such as Blue Snowball (Best Buy, 2015). Not only Snowball microphone is user friendly, it sounds as good on the computer as it does in a professional recording studio. This is a multi-step process that takes time to create a FC video. Time is a strong factor that prevent teachers from producing an extremely well-done FC video. I recommend that beginner FC teacher should build a small collection of 1-take videos to serve the general purpose of new concepts, lessons, projects and units. After this collection is built, teachers should have more time to invest in higher quality FC videos by incorporating advanced tools.

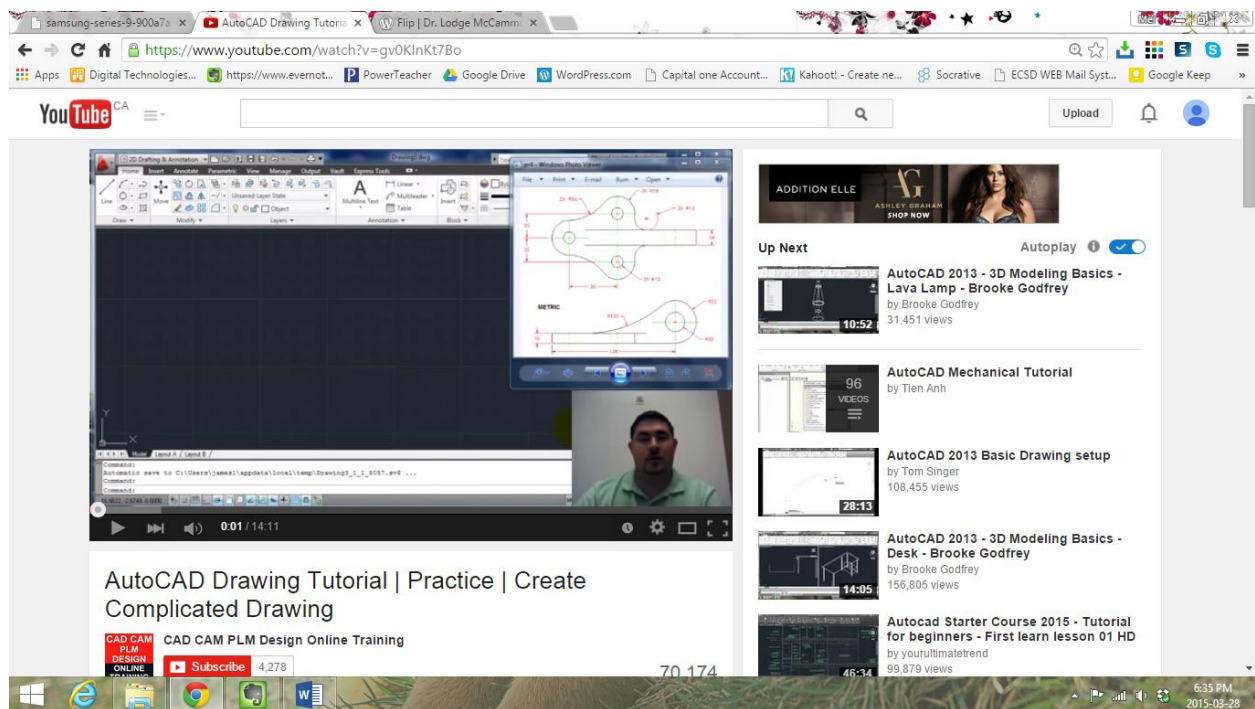


Figure 15 AutoCAD Drawing Tutorial | Practice | Create Complicated Drawing from YouTube by CAD CAM PLM Design Online Training, 2012.



Figure 16 Blue Microphones – Microphone – Gloss Black from Best Buy, 2015.

Alternatively, users can utilize the on-screen recording software Camtasia instead of SnagIt together with webcam and Snowball microphone to create AutoCAD Drawing Tutorial | Practice | Create Complicated Drawing video without using Adobe Premier Pro CC. Camtasia is an upgrade of SnagIt. It costs \$299.00 per computer and is available for educational volume discounts. Advanced FC teacher finds Camtasia more useful than SnagIt because it has more functions. It acts as an on-screen recording software and a full video editing software. In my school district, Adobe Master Collection products are available to all schools so it's worth to use SnagIt which cost less even if it's combined with the purchase of Adobe Premiere Pro softwares. Camtasia tutorial is available at Camtasia Studio 8 Tutorials <http://www.techsmith.com/tutorial-camtasia-8.html> (TechSmith, 2015). Camtasia can manage the whole process from recording to

adding layers of videos, narration and music. The process is more manageable than using SnagIt along with Adobe Premiere Pro CC editing software.

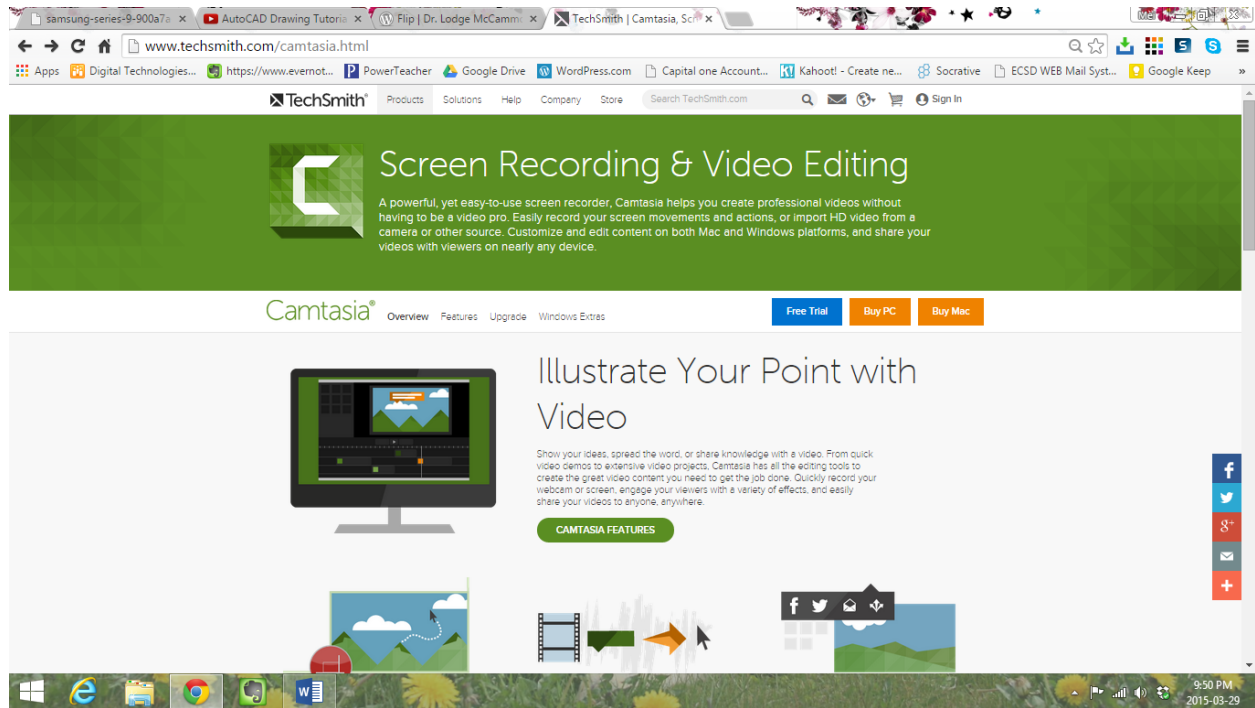


Figure 17 Camtasia Screen Recording & Video Editing from TechSmith, 2015.

Camtasia has two additional features, Green Screen and Interactive content. Green screen is a green background for the subject to stand in front. The user can easily record a green screen video with the help of two studio lights - one to light the subject and one to light the background – and a recording device such as a mobile phone or a camcorder. Camtasia’s interactive content feature allow users to add clickable hotspots or links to create table of contents, step-by-step video and search options within a FC video. Follow this link <http://www.techsmith.com/camtasia-education.html> (TechSmith, 2015) to watch a promotional video created by Graham “Math” Johnson’s interactive video lesson on interactive content. Camtasia is a powerful software that can replace a stand-alone video editing software such as

Adobe Premiere Pro. I recommend users who have no free access to Adobe Premiere Pro CC to purchase Camtasia instead of SnagIt to make FC video. A user can purchase SnagIt with a small cost to start making FC videos and upgrade to Camtasia in the future whenever he/she is more comfortable with video editing.

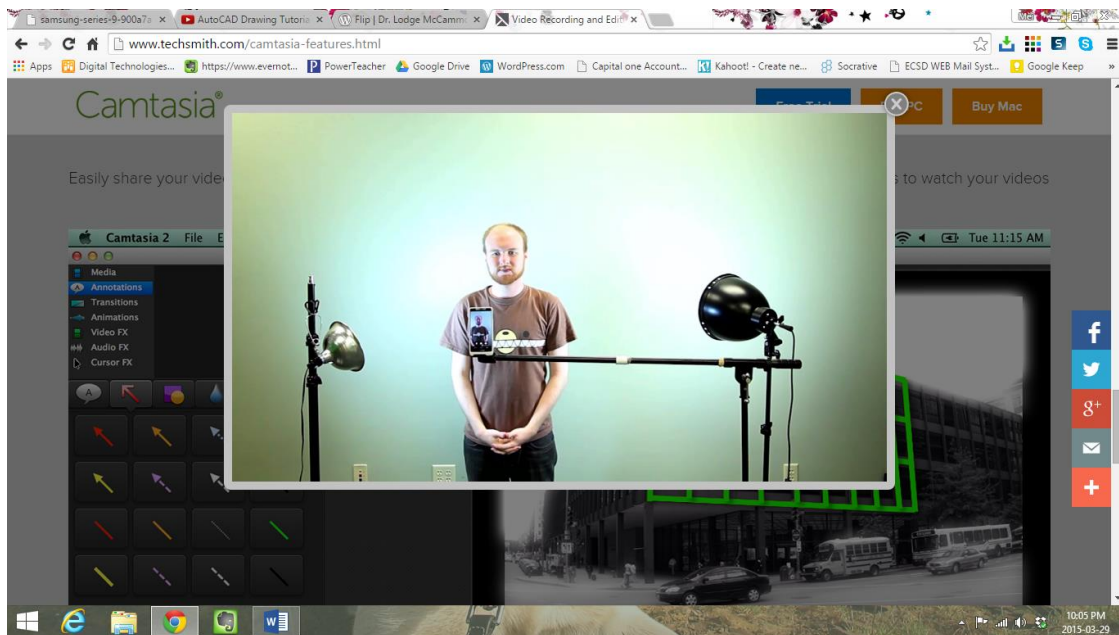


Figure 18 Green Screen effect from TechSmith, 2015.

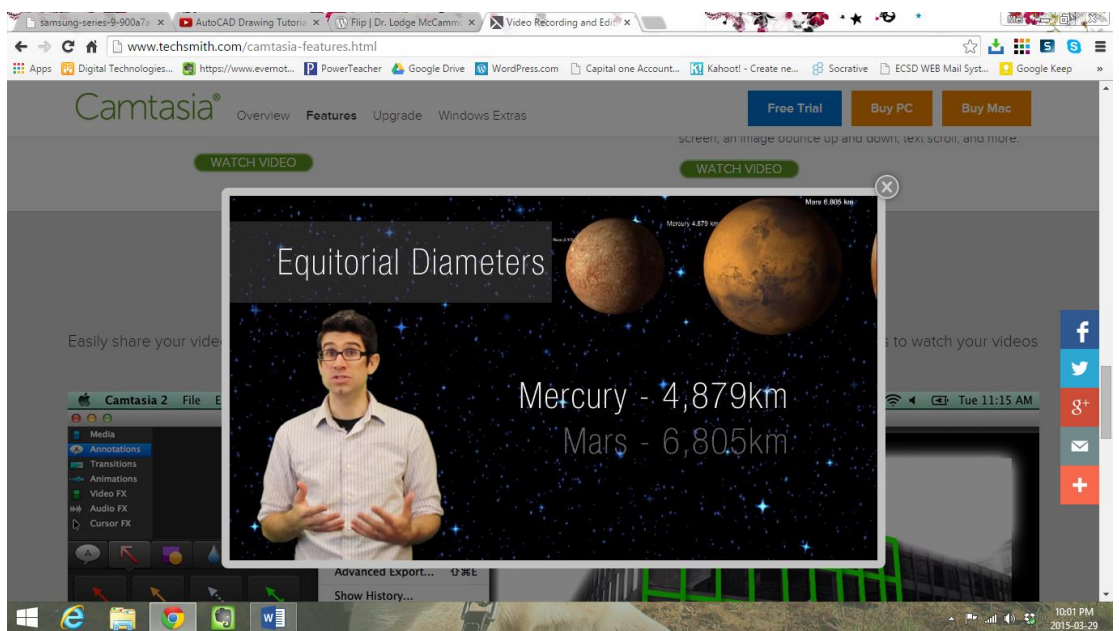


Figure 19 Green Screen effect from TechSmith, 2015.

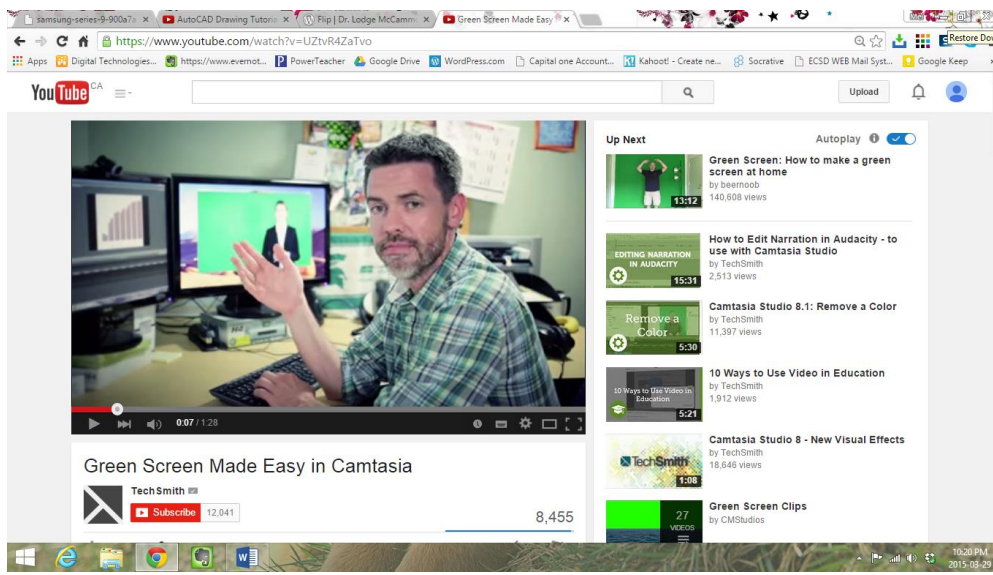


Figure 20 Green Screen Made Easy in Camtasia from TechSmith, 2015.

Data collection, data analysis and report writing

I made the first FC video when I was in the process of exploring possibilities in my capstone project. It's also from the need of testing out my capabilities of carrying out a process and creating a useful video for my students. The process of planning is cumbersome because I needed to organize a student volunteer during lunch time along with at least another student volunteer as a model for the video. Along with a busy teaching schedule set back the recording process for a month and fortunately, my enthusiastic volunteer cameraman pushed me to record the first video. The experience of talking in front of the camera while teaching my invisible audience is very different than teaching to a group of students. My first video was done in one take and my students and I had enough time to shoot only one video. The pressure of saying the right thing in the right order was quite stressful in the first recording. This was also the first time that I realized how my physical posture was not what I imagine it to be. This video was the motivation for me to start exercising for the first time in many months of busy work schedule. I also noticed my speech was quite strange because I would raise my voice at the end

of the sentence. I now practice the way of explaining things to my students without making it sounds like I'm asking a question. I was very happy with my self-discovery by recording just one video.

If I was to carry out the FC project in Com Tech Photo 20, I will keep daily journals of my experience. The journal is about how flipped videos can help my students catch up from missing classes and how it allow student options for choosing interested projects. In addition, it is about how advanced students can complete FC projects in a shorter amount of time. The journal can also record how much instructional time being freed from teaching basic knowledge concepts in face-to-face time and to provide help to students in needs. These are expected results from my teaching experience in the past ten years. I also expect that some students may not like to learn concepts from videos. Not only I will make notes of the successful experience but I will also note the negative effect of implementing FC project in my classroom. The journal is a good source of information for qualitative research in autoethnography method. I will share my experience with other teachers who have experience in FC. This way I can draw conclusion about my research data to as whether my FC project have served the research question of my capstone project.

I will use the survey form at https://docs.google.com/forms/d/1LbwL-8tgFDNPGy3Pu8ui_020C1eXZnOvelP8C2PYaTg/viewform?usp=send_form toward the end of the semester to voice my students' opinions. I will use the survey to make decisions on continuing the FC project or modifying my teaching style in my situation. The questions were taken from Flipped Classroom Student Survey (n.d.), MHS Flipped Classroom – Student Survey (n.d.), Miss Tollefson (n.d.) and Roshan (2012, May 25). The survey comments from students form data for my autoethnography research method.

The data that I collect from my journal and surveys can be analyze and interpret in a six steps process (O'Leary, 2014). They are as:

1. Collect data through writing journal of daily interaction with students during the implementation period and survey at the end of the FC project.
2. Record, monitor data as it is collected including source such as the interaction and activities with students and collection dates. I will use the EverNote software to record my notes because EverNote is accessible through all platform such as computer, tablet and mobile phone. I can record my journal at convenient time in any location.
3. Assemble data sources by categorizing like sources and removing any data not related to the analysis such as students' positive interaction and experience with FC project and their negative experience, my positive experience versus negative experience, or issues related to FC project that I did not experience in regular project or non-existed problems in FC project that I experience in regular project in the past.
4. Scrutinize and record notes that may help in categorizing the data.
5. Compose data for analyzing. I will use transfer data recorded in EverNote software to Microsoft Word. If it's necessary I will print all data.
6. Prepare data analysis materials. I will index (see step 3) data electronically in Microsoft Word.

After data is indexed in Word, I will explore my data deductively by having my research questions "Can Flipped Classroom be applied as a technology aid to make 21st Century Learning a success?" in mind, theories from literature review in Chapter 2, my prior experiences and

insights I had while collecting data (O'Leary, 2014). At this time, I may need to make a decision to whether I need to fine-tune my inquiries goals and/or objectives.

The final step to the process of an autoethnography is the report writing. Ellis & Bochner (2011) explain that the researcher seek to produce aesthetic and evocative descriptions of personal and interpersonal experience. This way I can reach a wider audience that traditional research usually disregards (Bochner, 1997; Ellis, 1995; Goodall, 2006; Hooks, 1994, as cited in Ellis, Adams and Bochner, 2011). O'Leary (2014) explains that qualitative data is in the words and images. I hope that by choosing to present my research the autoethnography style can benefit other educators from my personal experience and thoughts.

Conclusion

In education, many teachers are hesitant to apply new technology in their classroom when it was first introduced because they are nervous by the idea of failing. Technology can let us down. It will work today and may give us problems the next day. The first attempt of implementing a new technology can be nerve wrecking. If we never try, we never succeed. If we never fail, we never learn and succeed.

Chapter 4 Reflection

The graduate studies of MEd program have changed and reinforced many aspects of my professional thinking about curriculum instruction and leadership. I will explain the importance of following six aspects to my teaching beliefs and practices:

1. "Teaching is problematic" and Pedagogical Content Knowledge (Loughran, 2013)

2. The fifth shift of the ten Pedagogical Shifts in Alberta Education (Alberta Education, 2010) related to Eisner (1995) and Haste (2009)'s studies
3. The relationship of action research and Professional Learning Communities (Fitchman-Dana & Yendol-Hoppey, 2009).
4. Inquiry as Stance Framework (Cochran-Smith & Lytle, 2009).
5. Three key factors that can contribute to great leadership skills.
6. Three key Change Principles when an organization implements change.

The MEd program started by looking at the idea that “teaching is problematic” and Pedagogical Content Knowledge or “PCK is evident... when ... subject matter knowledge become[s] meaningful and usable” (Loughran, 2013). These two concepts help reconfirm my current teaching practices and reassures my teaching beliefs. Loughran (2013) defines teaching is problematic because teachers need to “make active decision making and reasoning” to evaluate students learning. The information collected from the evaluation process would then be used to evaluate the teacher’s own pedagogy. In Loughran (2013), Mason (2002) points out the idea of “noticing”. It is a reminder for me to be sensitive with the classroom’s environment, act appropriately and respond accordingly to students’ need.

PCK means that the teacher takes the Program of Studies outcomes and his/her specialist skills to deliver the content the way that is best fit to the students in different situations. When the content is delivered properly, the students will realize that the subject matter knowledge is meaningful and useful to them. I realize that in order for me to make the subject matter meaningful and usable, I must be an expert in content knowledge. If the understanding of the content is a problem to me then it is difficult for students to see the value of

the course. Problematized teaching is significant to me because it helps me to identify what works and does not work for my students. PCK is important because it help my students produce products that can go beyond the standards and expectations of the curriculum.

The second important aspect is related to current trends in Alberta Education, Ten Pedagogical Shifts. The fifth-shift informs educators that the curriculum should be delivered more digitally and use less printed-based materials (Alberta Education, 2010). Educators expect to have a major shift in the delivery of curriculum due to advancement of technology in the twenty-first century. Students and teachers are expected to use the power of technology to support innovation and discovery that leads to successful education for all students. Ideology matters when we want to reform a system. Curriculum is “the school’s major means” (Eisner 1995 p. 47) run by the ideologies that it values. The curriculum are the “activities ... guided by the outcomes in the provincial programs of study” (Alberta Education, 2010a). From my perspective, the current school system leans toward the rational humanism ideology. This ideology believes that teacher is the expert and holds the knowledge. The students who are born intelligent will produce the best work. The ideology has the potential to be a barrier to the new system. The fifth-shift in digital delivery recognizes the cognitive pluralism ideology. Educators in the rational humanism system should rethink and adjust their pedagogy to grow with the new trend.

Haste (2009) suggests the need for educators to adjust to a cultural shift by incorporating new technology’s tools and foster the competences in young people. In the twenty-first-century life, there is a need to create a democratic bottom-up system and generate competent civic agents. To Haste (2009) competence means how effective

one can adapt to changes in the use of technology. It is significant to me because I can help my students put their technological competences into practice, given that I demonstrate competences in my teaching practice. For example, I have now integrated the use of technology into my work which result in eliminating the use of paper. In addition I have the benefit to access my files anywhere. Haste's (2009) article made me think about my top-down teaching practices. I'm convinced when Haste (2009) provides examples of technology-based actions such as Obama's campaign created a blog to get responses from young people. I believe that if we are skillful in manipulating the technology, it is possible to produce educational effects from leisure technological skills. I found that it is confusing for teachers to take a stance in cognitive pluralism to support the new shift while functioning in a rational humanism system. Despite the technical issues of the less-than-perfect system, I believe that our current generations of teachers are capable of moving forward. The shift is slowly transforming the teaching practice due to the different stages of adoption of new technology within our teachers. Factors such as maintenance, inequalities, stress, working condition, time, motivation and skill cannot be overlooked.

The third important aspect is the relationship of action research and Professional Learning Communities (PLCs) (Fitchman-Dana & Yendol-Hoppey, 2009). Action research and PLC are two types of professional development. Action research is the process when teachers seek out the answer to a question in education. The process involves three types of knowledge: Knowledge *for*, *in* and *of* practice. Researchers found that combining the three types of knowledge is the most effective approach to professional development that can lead to real change. This means an effective PD should involve the delivering of the knowledge from a

source by providing method of implementation to the teacher. The teacher then implement, reflect, collaborate with colleagues and receive continuous support through a community with a common goal, PLCs.

CTS teachers are a minority at my school in comparison to other departments. When I have questions related to my specific subject, I can only find answer by seeking out online collaboration spaces or teachers from different schools. The first key idea is important to me because I realized that I'm not too far from being on the right track in my Professional Development. I acquire knowledge from sources such as workshops, online self-studies and try to implement the new found knowledge in my classroom. With the new knowledge, I tend to share this with other CTS teachers in the network. It's important for me to learn the correct process in a PLCs meeting because we meet once a month. Before reading Fitchman-Dana & Yendol-Hoppey (2009), PLCs is just a conversation between teachers in the same department. I strongly believe that PLCs meetings are effective when we follow the PLCs protocol. In addition, I learned the importance of having both PD and PLCs in a teacher's professional life because PLCs meeting helps deliver the knowledge of practice which is an important component in action research. Fitchman-Dana & Yendol-Hoppey's (2009) three types of knowledge in action research combined with PLCs protocol in my meetings can significantly improve my professional development along with creating opportunities for students to advance.

The fourth important aspect is Inquiry as Stance Framework (Cochran-Smith & Lytle, 2009). The two significant key ideas to me are Communities as "catalysts for practitioner learning (p.139) and "democratic purposes and social justice ends" (p.145). These two

concepts helps and guides my current teaching practices and beliefs. Cochran-Smith and Lytle (2009)'s third dimension of inquiry as stance defines "communities as the primary medium or mechanism for enacting the theory of action" (p.139) and "inquiry as a collective" (p.120). It means that communities of inquiry involves not just individual practitioners but it involves groups such as one within or across the schools or face-to-face and virtual communities. These groups work together to help improve education practices, enhancing students' learning and pushing forward educational and social change. This concept is significant to me because it helps to expand my views as a practitioner across other disciplines. I can connect with others around the world through website virtual communities, blogs or real-time online discussions. Local practitioners contribute their projects and ideas to the website. I can learn interesting projects developed by other teachers who teach similar subjects in other countries. While language and culture may be different from our western world, ideas of teaching similar concept are similar yet different. In communities, all perspectives are valued as equal and everyone matters. The novice learns from the expert, the students learns from the teacher and vice versa.

Cochran-Smith and Lytle (2009)'s fourth dimension is "democratic purposes and social justice ends" (p.145). This dimension discussed about how the communities of inquiry should question and challenge the existing structures to create "a more just and democratic society" (p.146). This concept is important to me because I understand that I can confront and solve the new issue that do not yet exist in education and not just accept the invented curriculum, given the right condition provided. The idea that we need to question the existing system when we come across an issue that the system does not have the answer for is significant because there

are no precedence from the practitioners who experience first-hand of the situation. Some organization is more open to discussion and changes while other top down system and the politics within the organization often discourage such challenges. It encourages participation from all practitioners to create a diverse and democratic society. Cochran-Smith and Lytle's two dimension encourages me to critically inquire on the current issue that the system do yet not have the answer to.

The fifth important aspect are the key factors of a great leader. The power of a strong leader can nurture a seed and flourish it to become a forest. In my opinion, the key factors that can contribute to becoming a great leader are: shared leadership, elimination of nondiscussables and caring. Barth (1988) envisioned a school is "a community of leaders, a place whose very mission is to ensure that students, parents, teachers and principals all become school leaders in some ways and at some times." (p. 640). I believe that the school system should encourage teachers to take turns in heading a department in order to experience the position as a leader. This will enable teachers to learn how to be great leaders and an advancement in their career. As Edmonton Catholic School District approach the 21st Century Learning, the District tried to implement the FLEX program on a few pilot schools. One hour lunch time of FLEX schedule allow students to choose various subject sessions offered by different departments which is important in the students' priority list. Recently, all administrators and senior high teachers in my school gathered during Professional Development Day and introduced the FLEX program. The administrators open the discussion to all teachers and allowed the teachers to express and share their ideas about FLEX scheduling that affects everyone in the school. This is a great example of shared leadership.

The second factor to instructional leadership is the transparency in the leader's communication and the elimination of nondiscussables items. I strongly believe that we should have an open communication with everyone in the team. Barth (2002) mentioned that "to change the culture of the school, the instructional leader must enable its residents to name, acknowledge, and address the nondiscussables—especially those that impede learning" (p. 8). A few years ago, teachers at Louis St. Laurent High School (LSL) was advised by the administrators that our school program will be converted to IB standards. The introduction of IB program to a smaller school like LSL is not ideal because of the imbalanced ratio of IB students and non-IB students (e.g. a class of four IB students versus a class of forty non IB students). This poses a stress to teachers and students. This has become a nondiscussable topic among teachers.

The third factor to instructional leadership is caring for the well-being of the followers. Nodding (2012) "suggest to casual readers or listeners that caring is a warm, fuzzy feeling that cannot do much to identify or solve moral problems" (p. 56). It is important for administrators to listen and empathize with teachers so that the teachers will have security of knowing that his/her voice and emotion is being heard. This can be a motivating factor for the teachers to carry on difficult task. Nodding (2001) advises that "genuine care will realize and extend the process of that humanization" (p. 35) which solidify all beliefs in motivating employees to perform highly in their work given various obstacles they face. Barth (2002) and Nodding (2012)'s articles helps me understand the key to become a great leader.

The sixth important aspect are key issues when an organization implements change. Change Principle #1 supports the process involving people and organizations to move gradually

and acquire the necessary skills during the process. Hall and Hord (2006) recommend three to five years to implement change. When my principal takes on a new position at a school, he learned not to come in with blazing guns and start making drastic changes as it will disturb the existing culture. The disruption can quickly breed resentment. He said small ripples in the water over time can result in a tsunami of success.

To ensure a successful change, Change Principle #3 states that the entire organization does not change until each member has changed. This is proven true. If one or more members are not receptive to the changes of the organization, it will create a disharmonized environment which will prevent the change to move forward. A few years ago, teachers were using whiteboard in their presentations. With the advancements of technology, my principal introduced Smartboard Technology to the school and many teachers had difficulties adjusting their way of presenting course materials to their student. My principal said that many teachers complained and resisted using the Smartboard, however, through time, teachers managed to comply and adapt to the new technology. Change is best received when it is viewed as something to embrace versus something to avoid.

In order to facilitate change, there are crucial steps to ensure a smooth transition. In reference to change principle #3 where it states all members have to be on board in order to adopt change successfully. Change principle #10 explains the importance of group collaboration. The role of the Administrator is as important as the role of the front line users and the non-users of the innovation. The front line users involve teachers who are more receptive to the innovation and the non-users are the ones who refuse to adapt to change. All must work and build a harmonized environment. These three Change Principles are significant to me

because they have broaden my scope in understanding change and what actions can be taken in order to overcome obstacles during implementation of change.

The above six significant concepts presented in literature helps me to look at my professional teaching practice as an educator. I learned to be sensitive with the classroom's environment, act appropriately and respond according to students' needs. This helps me to identify what works and does not work for my students. As a result, my students can produce products that can go beyond the expectations of the curriculum. I realized that I can help my students put their technological competences into practice, given that I demonstrate competences in my teaching practice. In addition, I learned that Professional Development (PD) is important in my professional teaching career. PD and Professional Learning Communities help deliver the knowledge of practice which is an important component in action research. This concept helps me to expand my views as an educator across other disciplines. I also learned that I need to confront and solve the new issue that do not yet exist in education and not just accept the invented curriculum.

The literature helps me look at my teaching practice as an educator and expands my knowledge in addition to learning what it takes to be a leader. There are three key factors that can contribute to becoming a great leader. Shared leadership enables teachers to be great leaders and advance their careers. A good leader creates the transparency in the leader's communication, eliminates the nondiscussable items, and care for the well-being of the followers. Finally, I learned about the three Change Principles if a leader wants to implement a change in an organization. People and organizations need to move gradually and acquire the necessary skills during the change process. Change is a process, not an event. In order for

change to happen, it requires the collaboration of all members in the organization. Change cannot happen until each member has changed.

As an educator for the past ten years, I have experienced teaching all divisions and I have taught at various school in different school districts. I had the opportunity to be an educators in different teaching environment and under the leadership of various principles. This graduate experience helped me by looking at the bigger picture in education. I now understand many aspects of curriculum and leadership other than the narrow view of a classroom teacher when I started the graduate MEd program. My understanding of curriculum from different angles, what it takes to lead an organization and implement changes, can be beneficial for my future professional career development. I've started looking into leadership roles in my school and district since the second year of the graduate program. I expanded my current contacts by presenting at Professional Development (PD) day for teachers such as Transform PD at my school, Career and Technology Studies PD with Alberta Consortium, GETCA annual teacher convention for school districts in Edmonton and surrounding, UAlberta Maker Day Conference for University of Alberta students and Digitally Engaged Catholic Citizen Summit within my district. My public speaking experience has given me the opportunity to inform educators regarding the use of technology to become more productive professionally. It's a joy to help others overcome their technological difficulties.

As the result of my understanding beyond the classroom teacher role, I have initiated Transform projects such as

- cross-curricular departments multimedia promotion,
- project-based learning for school display media design,

- collaborative learning initiative with Industrial Art,
- multimodal stations in CTS lab as Makerspace in F.L.E.X.,
- differentiated instruction in Com Tech and Design programs to improve students' engagement and competencies-based assessment for special students.

My additional contribution to the Catholic education is by engaging students in ethical citizens projects such as ECSD eight Catholic values visual and animated presentation. The 3E logos (*Ethical Citizens-Engaged Learners-Entrepreneurial Spirit*) displayed on our school wall is our school's pride and students' accomplishments. With additional involvements in Entrepreneurial projects and invaluable connections made at StartUp Weekend EDU with business owners, IT professionals, Alberta Distance Learning Centre and members from Alberta Education have inspired me to become a StartUp Entrepreneur Business Education facilitator.

For educators who may be interested in my capstone project, my capstone paper on Flipped Classroom technological teaching pedagogy helps educators simplify the teaching process and enhance learning experience for students in 21st Century Learning. My project can help educators utilize Flipped Classroom as tool that enables Universal Design for Learning (UDL) model in their classroom. I believe all students can learn and UDL is for everyone. In addition, educators can learn the use virtual classroom to deliver projects with differentiated instruction in mind. With multiple instructional delivery methods and multiple choices of projects, educators can engaged students in projects that are meaningful to them.

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Appendix

Appendix A

Mrs. Luong's Studio lighting tutorials

1. Studio lighting room intro

<https://www.youtube.com/watch?v=V6UdWT3XCEc>

2. Equipment intro

<https://www.youtube.com/watch?v=OaygHN7-sac>

3. Camera setting

<https://www.youtube.com/watch?v=3yLN1EMr50A>

4. Studio lighting 1: One light overhead

Luong <http://youtu.be/WpPLjelFMps>

YouTube http://youtu.be/b3U4lpgwxZY?list=PL80HxqSmTPniqfr047PtuzRJx_ol-Lse8
http://youtu.be/y2ffuhXvtJE?list=PL80HxqSmTPniqfr047PtuzRJx_ol-Lse8

5. Studio lighting 2: Clamshell 1

Luong <http://youtu.be/omOsusJyRFM>

YouTube http://youtu.be/LS7skn8FLJ0?list=PL80HxqSmTPniqfr047PtuzRJx_ol-Lse8
http://youtu.be/YSATi5s8RrQ?list=PL80HxqSmTPniqfr047PtuzRJx_ol-Lse8
http://youtu.be/LS7skn8FLJ0?list=PL80HxqSmTPniqfr047PtuzRJx_ol-Lse8

6. Studio lighting 3: Split/hard light

Luong <https://www.youtube.com/watch?v=55eWNd59e6w&feature=youtu.be>

YouTube http://youtu.be/lgCNHKYeNZ0?list=PL80HxqSmTPniqfr047PtuzRJx_ol-Lse8

7. Studio lighting 4: Rembrant

Luong <http://youtu.be/5JWqjaH1xXg>

YouTube http://youtu.be/HYEJROIF8lk?list=PL80HxqSmTPniqfr047PtuzRJx_ol-Lse8

8. Studio lighting 5: Butterfly

Luong <http://youtu.be/zmWpxHni7Es>

YouTube http://youtu.be/en4Mk_jqdcQ?list=PL80HxqSmTPniqfr047PtuzRJx_ol-Lse8

(Butterfly is the second last but it's worth to watch the whole video)

9. Posing

http://youtu.be/Sn1tVFsNWdM?list=PL80HxqSmTPniqfr047PtuzRJx_ol-Lse8

There are many more videos on YouTube.

Appendix B

Photo 20 Com 2205 Photograph – Composition Project

Project assignment overview:

- Produce a presentation (e.g. collage) based on a proposed theme you have discussed with me. You can have 1 theme for both studio and outdoor portrait or 1 theme for studio and 1 theme for outdoor portrait. Each student can have his/her own theme while working within the group or the group can share the same theme.
- Students should work in group of no more than 3. Each student submits his/her own portfolio consisting of 5 Studio Lighting Portrait pictures and 5 Outdoor Portrait pictures. You must set up your studio for the session with props. Please dress appropriately for your theme (makeup, clothing...).

Part 1: Study lighting techniques

Watch all videos in 'Luong's Studio lighting tutorials' document. Study these lighting techniques: one light overhead, butterfly, Rembrandt, split/hard and clamshell lighting techniques from the videos. Take note on the 5 lighting techniques.

Part 2: Plan your project: 10 shots (5 outdoors, 5 indoors shots)

Go to the resource "20 way of stunning portraits". Pick out 5 of your favorite techniques for outdoor shots. If you prefer other techniques, feel free to google.

Reference for better picture, study

What can you do in a location: see <http://www.rsblog.ca/> for inspiration

<http://www.betterphoto.com/contest/themes.asp> to look at the themes

Plan assignment: On a blank Word document, copy your 10 sample pictures from the resource or from google. These pictures will help you when you are in the studio. 5 of your sample pictures can be taken in an outdoor setting. The remaining five pictures should demonstrate the butterfly, rembrandt, split, overhead and clamshell techniques. You will submit this plan along with your pictures as part of the project.

Example of plan assignment:

Studio light and outdoor portrait plan

Outdoor portraits:

1. Break the rule of composition: This is what I will do for my picture...



2. Experiment with lighting: This is what I will do for my picture...



3. Focus on one body part: This is what I will do for my picture...



Indoor studio portraits

1. Butterfly lighting: This is what I will do for my picture...



2. Rembrant lighting: This is what I will do for my picture...



3. Split lighting: This is what I will do for my picture...
4. Portrait lighting: This is what I will do for my picture...
5. Clamshell lighting: This is what I will do for my picture...

Part 3: Take and edit pictures

Studio Portrait

Produce 7 pictures of **5 different types of lighting (one light overhead, Rembrandt, butterfly, split/hard, clamshell)**.

Outdoor portrait

Produce 5 pictures of 5 different outdoor portrait techniques.

Requirement: Your pictures must be cropped and edited in Photoshop for contrast and visual appeal. You've learned to edit a portrait from previous digital imaging project. Try to keep the pictures real.

e.g. adjust Hue and Saturation, Brightness and Contrast, Levels, Color Balance...

Part 4: presentation

1. **Submit 10 pictures individually.** One folder of originals pictures and one folder of edited pictures.
2. **Produce a collage** of your pictures on a 8.5x11 or 11x8.5 inches paper size or your other choice of presentation (please talk to me if you decide not to make a collage). Use any software of your choice (e.g. Photoshop or online editor...) Pick the best ones. You don't have to include all 10 pictures. Label it with your theme and your name.
3. **Critique:** write 2 paragraphs one for studio light and one for outdoor light criticizing your own work
 - What do you like/dislike? What problems did you have? How did you overcome the problem? Did you solve the problem? What would you do differently?

Appendix C

Advanced editing

1. RAW vs JPEG in plain English
<http://youtu.be/-35QG4dZ9IY>
2. Retouching photos with Photoshop CS 6 Training course - Camera raw basics
<http://youtu.be/cCYtlzLr1Zo>
3. Retouch, Airbrush, and Smooth Skin Professionally in Photoshop
http://youtu.be/N8XqJ8CQFVY?list=PL80HxgSmTPniqfr047PtuzRjX_ol-Lse8