Flipped Learning

Understanding the Flipped Classroom through the student experience

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Abstract

The overall purpose of this project is to build a better understanding for what Flipped Learning means and create an awareness for what it means in practice. Flipped Learning is a relatively new teaching style and learning model that is explained as, 'events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa' (Lage, et al., 2000, p. 32). Flipped Learning entails using the affordances of digital technology to support teachers in creating virtual lessons. This is done in an effort to open up class time for interactive peer activities for the students to engage in while a teacher is present (FlippedLearningNetwork, 2014). To gain a better understanding for what Flipped Learning, often referred to as the Flipped Classroom, is in practice, I have conducted a qualitative phenomenological case study of a 10th grade Social Studies class.

As research on Flipped Learning is minimal, the aim of this study is to contribute to the growing area of research and shed light on this phenomenon. In order to accomplish this, narratives of the students' experiences were collected through semi-structured interviews. Secondary data was collected through in-class observations. This study takes a specific focus in understanding the students' experiences by looking at how the students experience these swap of learning activities, happening in their different worlds, or environments. A sociocultural learning perspective has been used as a basis for this study. This has been used to understand the pedagogical framework supporting Flipped Learning. Related concepts within the sociocultural approach to learning have been used to understand the activity that occurs while the students are engaged in a classroom 'flip'. A thematic analysis was conducted to analyze the interview data as a method for extracting themes from the students' experiences.

My core findings show that the students are able to make connections between their experience with Flipped Classroom at home and how that translates to their experiences in the classroom. What this study has seen is how the bridging of the of two social worlds, home and school, of the participating students has learning potential. Yet, the students experienced a disconnection when it came to connecting the videos and the in-class activities. Atlhough the students experience a connection between their home and school experience in a Flipped Classroom, conscious design of how to connect the video lectures and the in-class activities needs to be taken into consideration.

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1 Introduction

Flipped Learning is a relatively new learning style that is growing in popularity (Bishop & Verleger, 2013, Danker, 2015, Gough, et al., 2016, Heimly & Bertheussen, 2016). The developing ease and availability of technology is making it possible for teachers to use technology more often for learning (Beetham & Sharpe, 2007, Greenhow, et al., 2009, Gough, et al., 2016). The Flipped Classroom is a model for learning that utilizes the affordances of digital tools to swap the classroom lecture, and the out of classroom activities, also referred to as 'homework'. In a simple explanation, 'flipping' the classroom entails assigning basic instruction in a digital format, usually a video to be viewed prior to class, and instead use class time for organized interactive group activities afterwards (Bishop & Verleger, 2013, Yarbro, 2014). According to Gough, et al., (2016) making more class time available for various teaching activities can 'engage students with higher order thinking.' (p.391).

Beyond this, Flipped Learning means so much more than just rearranging a lecture, it is a change of mindset. It not only swaps the learning environments; it swaps how the students are supposed to think about their learning. Flipped Learning takes the teacher-centered approach to learning, and pushes for a more student-centered approach, expecting the students to take a more active role in their learning (Bishop & Verleger, 2013, Krumsvik & Jones, 2016). The Flipped Classroom makes it harder for students to get by being passive learners, they are encouraged to take part in the learning environment (Gough, et al., 2016).

I came across Flipped Classroom while searching for online courses in Statistics. I wanted to get prepared for an obligatory class in relation to my master's studies and needed to get caught up. Coursera is an online free course website, where you can take university classes for free through the internet. I found that by watching the videos before my class, I was prepared with knowing the terms and had been able to work out some problems already myself beforehand. I felt a bit prepared for class. My interest for video learning led to seeing a TedTalk by Salman Khan, of the Khan Academy, a free online education site, about Flipped Learning. I related with the benefits he spoke of and felt it was an interesting topic that I just had to explore further. As a student, and mother of a child in grade school I have seen several opportunities where the Flipped Classroom could bridge some gaps for learning.

The purpose of this study is to gain an understanding of Flipped Learning and build an awareness for this teaching model. Although research is minimal, studies are showing positive results when Flipped Classroom lessons are utilized, often in student achievement and engagement (Danker, 2015, Yarbro, 2014). Therefore; with this research project I aim to become better known with the phenomena of Flipped Learning by unpacking what this concept means in theory and practice.

This thesis is built up to tell the story of Flipped Learning. The story begins with introducing the concept of Flipped Learning as it is understood at the current time. This includes an explanation of what this learning model entails in general and a background of how it has come to the point it is at now. I will also present the definitions of Flipped Learning that will be the basis for this study. Then I will present a review of research on Flipped Learning. Literature on Flipped Learning is minimal but growing, and in this research section I will discuss some common threads, themes and methods in studies conducted so far. At this point, I will present my two research questions that will guide my data collection and analysis. Following this introductory portion of the thesis, I will begin to discuss the relevant learning theories related to the sociocultural perspective and concepts that I argue are the foundations for Flipped Learning, and understanding the actions of the Flipped Classroom. Further I will explain my qualitative phenomenological case study, introducing the overall case, including a description of the participants and teacher involved. This will be followed up by describing how I handled the data collection through observations and interviews. Then I will present my findings through a thematic analysis of the interviews. The story will round off with a discussion of my core findings and suggestions for future work related to Flipped Learning.

1.1 Flipped Learning

What is Flipped Learning? The definitions for Flipped Learning have not always been clear (FLN, 2014). In one of the original studies of Flipped Classroom in 2000, Lage, Platt, and Treglia introduced the term *Inverted Classroom.* They described this new teaching style as ‘events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa’ (p. 32). The term inverted classroom, is used less often than the more popular Flipped Classroom, yet it was their simple definition of ‘flipping’ the classroom that is still used today in much of the research. It was a starting point to introduce a new way of thinking for teachers for how they could organize their classes and lectures.

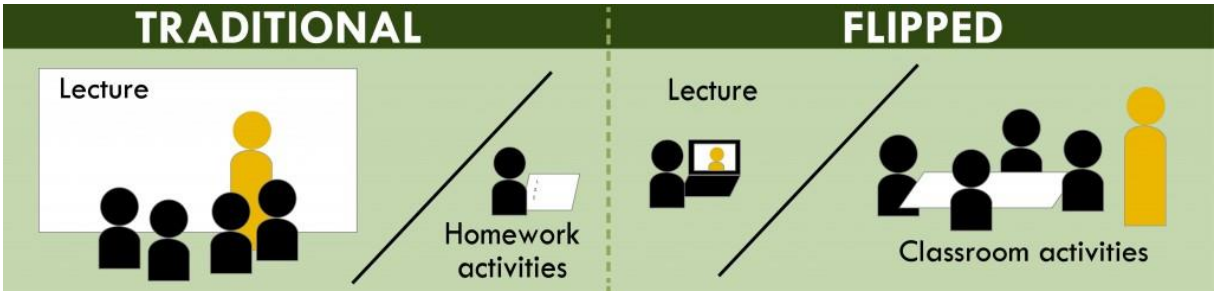

Figure 1 - www.washington.edu

In order to have a common understanding of what Flipped Learning is, this section will give an introductory overview of the concept. First looking briefly at the history, I will tell the story of Jonathon Bergmann and Aaron Sams, the generally recognized pioneers of popularizing Flipped Classroom in practice. Their dedication to this teaching style has created a growing community for Flipped Learning worldwide. I will briefly mention other online sources contributing to the development of Flipped Learning, among them The Khan Academy. Lastly, I will present the most recent recognized definitions of Flipped Learning that frame this study.

1.2 Background of Flipped Learning

Jonathon Bergmann and Aaron Sams, are attributed as the pioneers of Flipped Learning and popularizing the Flipped Classroom (Gough et al., 2016, Helgevold & Moen, 2015, Johnson & Renner, 2012, Sohrabi & Iraj, 2015). These two high school chemistry teachers from Colorado began creating video lectures in 2007 for students that were often away from class due to having to travel far distances for sporting events (Bergmann & Sams, 2012). In their book, *Flip Your Classroom*: *Reach Every Student, In Every Class, Every Day* (2012), Bergmann and Sams tell that the videos were a way for them to save time from having to repeat lectures. They posted the videos online and referred absent students to watch them first and then come back with any questions. Before long, they found that not only the absent students but *many* of their students started using these videos. They found that students enjoyed the video lectures, referenced them often and used them for exam review. They began to refine and further develop this approach until they had completely flipped their classrooms, meaning that all lectures were video-based and class time was used for working on labs and

projects. The biggest benefit they noticed was having more time in class to focus on directly assisting students. Their online videos became popular worldwide, motivating these two high school teachers to continue creating awareness and aiding other teachers in implementing a classroom flip. With support from a growing flipped community they developed the online resource hub, The Flipped Learning Network (FLN).

1.3 Flipped Learning Network (FLN)

The Flipped Learning Network is a non-profit organization created by Bergmann and Sams as an online community for educators to collaborate on techniques and practices related to Flipped Learning (Yarbro, 2014). On this collaborative resource hub, educators can share experiences, address issues and receive tips for practicing Flipped Learning. In association with Pearson and researchers at George Mason University, the FLN has begun reviewing and posting relevant research conducted on this learning model. They do this in an effort to bring this model of teaching closer to empirical research and explore its effectiveness. The studies they post report both advantages and challenges associated with Flipped Learning. Their goal is to document outcomes of Flipped Learning in the classroom as well as achievements and engagement. As part of aiding best practice for a Flipped Classroom, the FLN developed the FLIP model as a guide for teachers (Hamdan, et al., 2013, Krumsvik & Jones, 2016).

1.4 The FLIP Model

The FLIP model represents which requirements must be in place for educators to work towards Flipped Learning. The model is made up of the four pillars of Flipped Learning, a framework for creating an effective Flipped Classroom (Hamdan, et al., 2013). In a white paper review of Flipped Learning, Hamdan, Arfstrom, Mcknight, Mcknight (2013) introduced the FLIP model. The first pillar is a *Flexible Environment*. This means that teachers provide a variety of learning modes, for example videos and podcasts, or group work and work sheets. The goal is to create a flexible learning culture where students can ‘choose when and where they learn’ (p.2). *Learning Culture* means the shift from a teacher-centered learning environment to one that is student-centered. This means that ‘students move from being the product of teaching to the center of learning’ (p.3). The third pillar is *Intentional Content*. This pillar emphasizes the importance in the design of both the information in the digital tools and the organization of the classroom activities. It is also a reminder for teachers to do a

continual evaluation of delivery methods to match the content, knowing what to ‘flip’ and what to deliver directly. The last pillar, *Professional Educator* emphasizes the importance of having the support of the teacher present in class to guide students in their activities. Meaning that the Flipped Learning model does not replace the importance of the competent other’s role in learning (Hamdan, et al., 2013). These pillars are meant to guide and clarify what it means to work as an educator using the Flipped Learning model. Based on these requirements Flipped Classroom is often referred to as either a full-flip or partial-flip depending on the degree of flipped activities (Krumsvik & Jones, 2015, Bishop & Verleger, 2013, Hamdan, et al., 2013).

Beyond The Flipped Learning Network, there are other sources working with promoting Flipped Learning, not only in support of the model but by creating material educators can access and use.

1.5 The Khan Academy

The Khan Academy became well known for its simple YouTube videos explaining mathematical problems in a colorfully visual manner. Salman Khan first began creating videos for his cousins to help tutor them in math. Just like what happened with Bergmann and Sams, after posting the videos publicly on YouTube, he started getting feedback from people around the world that were using the videos to supplement their own math education (Khan, 2011). With a desire to make education for everyone, he developed the free online course academy, Khan Academy (khanacademy.org). In a TedTalk in 2011, Salman Khan talked about Flipped Learning, and the benefits it affords for student mastery. He has since embarked on studies where schools use his online videos for direct instruction as homework, freeing up class time for teachers to engage students in collaborative peer activities (Khan, 2011).

1.6 Defining Flipped Learning

In 2013, Jacob Bishop, and Dr. Matthew Verleger, conducted the first known research review of The Flipped Classroom. At the time they defined the Flipped Classroom as:

> *'…an education technique that consists of two parts: interactive group learning activities inside the classroom, and direct computer-based individual instruction outside the classroom. (Bishop & Verleger, 2013, p.3)*

This definition builds on the simple explanation presented by Lage, Platt, and Treglia 13 years prior. The focus on technology as the source for instruction as opposed to reading has become a clearer definition of the Flipped Classroom. At this time, I would like to clarify the difference between Flipped Learning and Flipped Classroom. According Yarbro, et al., (2014), these two terms are not synonymous. The Flipped Classroom has been understood for many years as any approach where a teacher asks students to complete activities outside class, everything from reading, watching supplemental videos, or similar. Flipped Learning indicates something more whole and encompassing. According to the Yarbro, et al., (2014) The Flipped Learning Network has more narrowly defined Flipped Learning as:

> *'…a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.' (Yarbro, et al., 2014, p.5).*

For the purpose of this study, I will use the term Flipped Learning to indicate the overall theoretical teaching method and the goal for learning it entails. The term Flipped Classroom will be used to indicate the collection of components that make up this model, the video lectures and subsequent classroom activities. Both terms will incorporate the two previous definitions to include, 'computer-based individual instruction' and the FLN's explanation of 'a dynamic, interactive learning environment' with an educator present. Most studies will either use one or the other term, but generally support the above definitions of Flipped Learning/Classroom. In the following section I will present an overview of research related to Flipped Learning/Flipped Classroom relevant to this study.

2 Researching Flipped Learning

There is relatively minimal research, and academic literature about Flipped Learning (Bishop & Verleger, 2013, Gough, et al., 2016, Hamdan, et al., 2013, Heimly & Bertheussen, 2016, O'Flaherty & Phillips, 2015, Sohrabi & Iraj, 2016, Strayer, 2009). As the affordances of technology and sharing capabilities increase and become simplified, the amount of academic research is increasing as it is being implemented more often (Gough, et al., Sohrabi & Iraj, 2016). Literature for this review was chosen based on relevance both theoretically and practically for this project. The works in this section are organized based first on pedagogical theories, then by the academic subject the study was done. I also present studies based on their research methods and the focus for several research questions. The idea here has been to give a general overview of the type of research being published pertaining to Flipped Learning, with consideration to research more related to this study.

Pedagogical theories supporting Flipped Learning have a common *student-centered learning* focus for teaching (Bishop & Verleger, 2013, Gough, et al., 2016). This means that students are meant to take a more active role in their learning. Student-centered learning theories are associated with the sociocultural approach to learning. This is reflected in the research as it is often chosen as a theoretical basis for research on Flipped Learning (Strohmyer, 2016, Krumsvik & Jones, 2016, Helgevold & Moen, 2015, Heimly & Bertheussen, 2016). According to Krumsvik & Jones (2016), the core meaning of the sociocultural perspective is reflected in Flipped Learning's focus on the interaction between the individuals and the use of digital tools. Also, that Flipped Classroom, aims to open up class-time for more interactive activities and social learning between students. Other theories utilized in the research include, cognitive load, constructivist and activity theories (Bishop & Verleger, 2013, Heimly & Bertheussen, 2016, Krumsvik & Jones, 2016, Sohrabi & Iraj, 2015,). In the study conducted by Sohrabi and Iraj (2016) in Iran, they align the active learning process associated with Flipped Classroom to constructivist learning theories. Krumsvik & Jones (2016), and Helgevold & Moen (2015), mention Vygotsky's Zone of Proximal Development as a pedagogical concept supporting Flipped Classroom's affordances for having the teacher more available in class, a key benefit of the Flipped Learning model (Gough et al., 2016).

Studies on Flipped Classrooms tend to be within the STEM disciplines (Science Technology Engineering, Mathematics) (Gough, et al., 2016, Yarbro, 2014). Lage, Platt, and Treglia,

(2000) started out by conducting their historic study on a university economics course. More recently the study done by Sohrabi & Iraj (2015) did their comparative, mixed-methods study on an adult level big data course. Murray, et al., (2015) conducted the study *Student Perceptions of Flipped Learning* on a university-level IT course. They reported that students are generally positive to the Flipped Classroom. These patterns of STEM subjects in higher education continue throughout the research on Flipped Learning (Gough, et el., 2016, O'Flaherty & Phillips, 2014). More closely related to this study as it was conducted on a middle school class in Norway, Krumsvik & Jones, (2016) researched Flipped Classroom and on student performance in a science class. More recently, subjects within the humanities are starting to emerge (Sohrabi & Iraj, 2015, Strohmyer, 2016, Yarbro, 2014). The Flipped Learning Network found in a survey of teachers that report practicing a Flipped Classroom, there was an increase in the Language Arts from previous years, that had no reports of Social Studies, yet in 2014, 18% of those practicing Flipped Classroom reported flipping Social Studies.

Studies often utilize a mixed-methods approach to their research (Helgevold & Moen, 2016, Johnson & Renner, 2012, Krumsvik & Jones, 2016, Sohrabi & Iraj, 2015) Researchers collect qualitative data through observations and interviews to see how students perceive and respond to Flipped Classroom, their level of satisfaction, and reflections on it. Surveys and grades are collected as quantitative data to look at, until now, smaller learning effects or teacher perceptions (Gough et al., 2016). Bishop and Verleger, (2013) reference several studies that measure the learning effect of flipped classrooms through test scores and grades. Still, at this time research about the learning effects of Flipped Learning is minimal though growing (Danker, 2015, Gough, et al., 2016).

As mentioned previously, the study done by Krumsvik and Jones (2016) in Stavanger, Norway, looked at the performance levels of middle school science students taking in a Flipped Classroom study. They did classroom observations with field notes and online test scores as data collection. Their in-class observations reported improvement in the students' performance which they confirmed later with scores the students received on a follow-up exam. Although their results showed an improvement in the students' performance, the researchers note that based on the FLIP model, their study was not a full-flip.

Another study conducted in Norway, focused on students' participation in an Initial Teacher Education course. Helgevold and Moen, (2015) conducted a full-flip, single-group study.

Data collected was done with a mixed methods approach, utilizing a questionnaire and interviews. The purpose of this study was to see if the flipped learning approach would increase students' engagement and involvement while in class. The researchers worked from a sociocultural perspective, and looked at the concept of Vygotsky's theory of mediated artifacts. The results show that students reported feeling better prepared for discussion groups and had greater participation. Yet, they also reported some negativity about the group discussions in class.

Generally, studies report students' positive attitudes towards the Flipped Learning approach (Gough, et al., 2016, Murray, et al., 2015, O'Flaherty & Phillips, 2015, Warter-Perez & Dong, 2012). Although in one study conducted by Johnson & Renner, (2012) found the opposite, that students preferred regular classroom instruction. This they attributed to a possible lack of initiative from the teachers in wanting to flip their class, and students needing a strong work ethic. In studies done on student perceptions students report positively to the flexibility and self-regulation that this teaching method affords (Helgevold & Moen, 2016, O'Flaherty & Phillips, 2015, Murray, et al., 2015, Strohmyer, 2016,). The ability to rewind and pause videos is mentioned often and students report liking the ability to learn at their own pace (Gough et al., 2016). The attitudes on group activities in the classroom vary. Some studies show that students enjoy the more interactive nature and working together with fellow students and doing activities with the teacher present (Helgevold & Moen, 2015). Other reports show that students do not always prefer group work (Johnson & Renner, 2012), nor do they trust the competence of their peers' knowledge. Bishop & Verleger, (2013) found that while students prefer the real teacher giving lectures over videos, they mostly prefer being able to do assignments in class to receive guidance from the teacher and peers.

In a doctoral dissertation conducted in the United States, Strohmyer, (2016) looked at high school students lived experiences with the flipped classroom model. This study was similar to my study in theoretical basis, research questions, chosen research methods, and analytical approach. In his study titled, *Student Perceptions of flipped Learning in a High School Math Classroom,* the researcher observed and interviewed two classes engaged in the flipped learning model for a semester. This study was theoretically based on the Cognitive Load, Sociocultural learning theory, and Schema theory. Data was collected through individual interviews with students, plus focus groups. A thematic analysis was chosen for analyzing

data. The results showed increased student engagement and achievement, as well as, a positive response to Flipped Learning.

Although research on Flipped Learning is minimal, it is a growing area of interest. As general perceptions are positive for video lectures and more direct assistance from the teacher, future research on Flipped Learning needs to research possible learning outcomes (Gough, et al., 2016, Danker, 2015). From what I see in the research, as future studies are conducted the variety of theories, research methods, unit of analyses, and learning effects, will increase. These factors will help in contributing to the growing understanding of Flipped Learning and what pedagogical implications it has. With the intention of contributing to the growing amount of research in an attempt to understand Flipped Learning better, in the next section I will introduce the research questions guiding this study.

3 Research question

In the literature review, I presented that research on Flipped Learning is minimal, meaning that the studies we have are only beginning to cover the many aspects associated with this learning model. My initial interest for Flipped Learning came as a curiosity in wanting to know what defined this learning model, what it meant in practice, and what effects it can have for learning. In light of the limited amount of studies conducted on Flipped Learning, I set out with this project to contribute to the growing interest for research on Flipped Learning. My intentions with this thesis are to first create awareness for Flipped Learning, and secondly to generate some clarity as to what identifies this model in practice. Basically we need more information; therefore, this study attempts to address some of the gaps in the research on Flipped Learning. For this study I have chosen to explore the students' experience with Flipped Classroom at the middle school grade level, in the subject of Social Studies. The purpose is to use the students' own accounts of participating in a Flipped Classroom to build an understanding for what Flipped Learning means. Based on the reasons above, I have chosen the following research questions to guide this study:

How do students experience Flipped Classroom?

This first question is meant as a starting point to get a description of what the Flipped Classroom looks like through the students' perceptions. To help us get a better understanding of Flipped Learning based on these perceptions I present the following question:

How do students' experiences of a Flipped Classroom
lead to a better understanding of Flipped Learning?

With the aim of getting the true experiences of the students, this study will look at the many aspects that surround the students while participating in a Flipped Classroom. I will look at student accounts of the different environments where activity takes place, the interactions the students have with others, and the different tools they use. In consideration for these aspects of environment and interaction, and inspiration from earlier studies, I have chosen a Sociocultural learning perspective as theoretical basis for this study. With the support of related concepts; Zone of Proximal Development, Scaffolding and Mediating artifacts to assist in defining the pedagogical basis of Flipped Learning. The concepts of Boundary

Objects and Boundary crossing are utilized in this study to understand what is happening between these different environments and with the different tools when they have been swapped for the Flipped Classroom. In the following section I will present these theories and concepts and relate them to how they apply to this study.

4 Sociocultural learning perspective

4.1 Introduction

The purpose of Flipped Learning is to enhance learning through a more student-centered learning approach by utilizing technology to open class time for more interactive peer activities (Bishop & Verleger, 2013, Gough et al., 2016, Krumsvik & Jones, 2016). The Flipped Classroom model combines recorded digital instruction, usually in the form of a video lecture, and appropriately organized classroom activities to support higher learning (Gough, 2016, Yarbro, 2014). The instructional video lectures are created or facilitated by the teacher. The students to watch these at their pace prior to meeting in class where they are meant to come prepared to engage in classroom activities. Collaborative activities are organized by the teacher to support relevant subject matter, encourage students to be more active in the classroom. These activities are usually project-based and designed for collaborative teamwork between the students (Bergmann & Sams, 2012, Gough et al., 2016). As these activities are taking place, the teacher is present to guide and support the students. This can be both in further understanding the content, and facilitating group collaboration. It also provides the opportunity for the teacher to be more present to evaluate the students' progress (Gough, et al., 2016, O'Flaherty & Phillips, 2015, Murray, et al., 2015, Yarbro, 2014). The interplay of these aspects; videos, student collaboration, organized activities and the teacher's availability is fundamental to making the Flipped Classroom work (FLN, 2014).

Based on these aspects of interaction with others and the interaction with digital tools this study applies a sociocultural approach to learning as its theoretical basis. These aspects have the possibility to create an environment that allows increased interaction for students with their teacher and their peers. It also introduces technological tools affording flexibility in how they interact with their instructional resources (Helgevold & Moen, 2015).

I will start this section by introducing the sociocultural perspective for learning, first in comparison to other theoretical learning theories and then the pedagogical works of Lev Vygotsky. Then, I will present the concepts associated with the sociocultural perspective, *the Zone of Proximal Development*, *scaffolding*, and, *mediational artifacts.* These concepts are relevant in guiding the pedagogical exploration of Flipped Learning and how this model is understood to support learning. Lastly, I will introduce the additional concepts of *boundary*

objects and *boundary concepts* in order to highlight other facets of Flipped Learning in consideration to the students' experience with participating in a Flipped Classroom.

4.2 Sociocultural approach to learning

The sociocultural approach to learning is a theory that understands learning through the social interactions and situations that surround the learner. In comparison to other learning theories, such as behaviorist theories that view learning as a way of accumulating associations in the situations we experience, and cognitive approaches that view learning as an internal cognitive process of organizing concepts and subjects in categories, the sociocultural approach views learning based on our social and cultural contexts (Greeno, et al., 1996, John-Steiner & Mahn, 1996). Greeno et al., (1996) refer to the sociocultural approach, or situated perspective as, knowledge '*distributed among people and their environments, including the objects, artifacts, tools, books, and the communities in which they are apart.'* (p. 17). What this means is that studying learning under the sociocultural perspective one takes into account the learner's physical and social environments, the things, or tools they interact with, and the people within that environment. Knowledge is viewed as a construction of our social interactions and contexts and not only as an individual process of associations and categorical organizations (John-Steiner & Mahn, 1996).

The sociocultural approach to learning originates from Russia in the 1920s by Lev Vygotsky, bringing about the idea of learning as a social process viewed through our interactions with others (John-Steiner & Mahn, 1996, Pea, 2004). This approach to learning, explores the idea that learning entails first a social process and then an individual process, in contrast to the knowledge dichotomy of other learning perspectives (Greeno, et al.,1996, John-Steiner & Mahn, 1996). Vygotsky proposed that learning develops first through our social interaction with others and then an individual process of a type of psychological internalization of what the action involved (Vygotsky, 1978). Vygotsky (1978) called these the interpsychological and the intrapsychological categories of development. Social interaction is the key point to get here as it is understood under this perspective as the source for where knowledge is constructed (Greeno et al., 1996, Vygotsky, 1978, John-Stiener & Mahn, 1996). The next aspect to recognize is not only the learner's interaction with others but with surroundings and the things in it, to focus on the action in which the student engages and in which *context* this activity takes place. To understand how a student learns in light of the sociocultural

perspective you must see the interplay of activity from the student and how they are situated in the complete environment (Rasmussen & Ludvigsen, 2010). Greeno, et al., (1996) state that students learn by interacting with each other and their material environments, through organized activities that support peer collaboration. Once knowledge acquisition is achieved through social interaction by the learner, the next step is internalization of the information, essentially making the knowledge their own. It is at this phase that Vygotsky believes one truly learns (Vygotsky, 1978, Wertsch, 1991).

4.3 The Zone of Proximal Development (ZPD)

Learning is not done on one's own. As it has been emphasized in this theoretical chapter the emphasis on interaction for learning, is key to understanding the sociocultural lens for learning. In supporting this approach, Vygotsky (1978) introduced the concept of The Zone of Proximal Development which emphasizes the importance of having a capable and more competent other, a teacher or similar, present during the learning process. To support the student and evaluate their progress. This evaluation entails assisting the learner in understanding the goals of a task, and following through to completion of the task. The teacher's role is to support enough that the student is capable of completing the task, yet know when to back down gradually so that the student can progress and eventually complete the task on their own without assistance. The distance from what a learner is capable of completing on their own to what they are capable of completing with the assistance of a competent other is known as the Zone of Proximal Development (Vygotsky, 1978). This concept explains how teachers should observe not just what a student knows but what they are capable of knowing. Having a teacher present to guide the learning process supports the students in their Zone of Proximal Development. Applying this concept, we see that by first understanding the difference of what it would take for a student to develop to the next level of understanding from where they are, we can then create the opportunity for students to develop further in that given area. The important factor here, is the aid of a more competent other to show, or model, the desired goal to support a student in this development. This next level of understanding is achieved when the student is capable of completing the more difficult task on their own. In the context of the Flipped Learning model, it opens up the possibility for the teacher to be more present in the classroom and overlook students as they engage in activity (Gough et al., 2016, O'Flaherty & Phillips, 2015). As teachers observe their students in

interaction with each other the opportunity affords teachers to clear up misconceptions or repeat things when students struggle (Bergmann & Sams, 2015). The idea is to have a teacher available to *scaffold* students as they engage in learning tasks.

4.4 Scaffolding

Scaffolding is the conceptual tool associated with ZPD, that explains how teachers can assist students in learning activities. Scaffolding involves evaluating, giving feedback, and fading assistance (Wood et al., 1976). Wood, Bruner, and Ross, (1976) introduced this term to explain the support system provided by a teacher to assist students in skill acquisition (Pea, 2004). Scaffolding entails the near presence of a tutor to constantly evaluate a student's progress on a given task. This evaluation includes making sure the student *maintains direction* in having a clear understanding of the task, that their *interest for completing* it does not wary, and that they manage their *frustration control*. To control for these factors, the tutor can *reduce the degrees of freedom*, meaning they can simplify the task, reducing the amount of information or task requirements the learner needs in order to accomplish it (Wood, et. al, 1976, p. 98). The tutor can also 'model' or *demonstrate* the way to the solution. This can entail imitating a possible way the learner can complete the task. By evaluating these aspects of scaffolding, tutors are able to tailor their feedback to the student in an attempt to encourage their continuous development, then gradually 'fade' their assistance on the particular learning task. Pea (2004) emphasizes the importance of 'fading' in scaffolding meaning that at some point the scaffolding needs to be dismantled and no longer needed by the learner in that task. When it comes to technology, according to Pea, fading is not always possible when utilizing technology for learning, as computers generally take over some portion of the task not capable by humans. This type of support is referred to as *distributed intelligence*, meaning the task is shared with technology and not owned by the learner.

In the Flipped Classroom, video lectures are a technology that can be seen as a tool capable of aiding teachers in providing scaffolding. First with creating the videos, teachers can condense content, reducing the degrees of freedom of a given subject, as videos are intended to be short and concise (Bergmann & Sams, 2014, Murray, et al., 2015), encouraging a teacher to reduce the amount of information presented to the students in each video. As mentioned previously, Flipped Classroom reallocates the class room lecture which *'frees up class time, allowing for more individual and small group instruction'* (Yarbro, et al., 2014, p.5). This opens up the

opportunity for the teacher to be present in class to assist students in task completion, the key focus of scaffolding (Wood, et al., 1976, Pea 2004). During class activities the teachers have the possibility to apply the tools of scaffolding like keeping their interest up, and direction of the task clear. The use of technology in Flipped Learning has other possibilities in scaffolding learners.

In recent years, studies have explored the possibilities computers have for enhancing learning and teaching (Verenikina, 2006, Rasmussen & Ludvigsen, 2010, Greenhow, et al., 2009). Computers have yet to show the complete ability to scaffold learners the same as a human is able to, mostly in being able to evaluate the learner (Pea, 2004). This mostly pertains to a computers' inability to 'fade' support. Yet, by having the ability to interact with the film through scrolling students are able to control the amount of information they receive (Gough et al., 2016). This can be seen as a way of scaffolding the flow of information. By taking control in interacting with the film, the students can be seen as mediating the amount of information they receive. For Flipped Learning we will look at how the features of the videos mediate different activities the students experience with Flipped Classroom.

4.5 Mediating Artifacts

To look at learning through the sociocultural lens, you need to observe the student in the entire context and incorporate all their surroundings. This includes peers and the environment around the student, as well as, the tools the students interact with (Rasmussen & Ludvigsen, 2010). Vygotsky introduced the concept of mediated activity to explain how learners indirectly interact with their environment by use of these tools, referred to as mediating artifacts (Vygotsky, 1978). These artifacts can either be technical, human- or nature-made tools, such as computers, books, or stones, or they can be psychological, such as signs, language, or arithmetic (Wertsch, 1991, Vygotsky, 1978). Wertsch, (1978) explains that the tools we use are historically and culturally loaded, meaning they 'carry' with them different meanings depending on the time and place they have been used. For example, a work-issued mobile phone, when used by a parent may be understood as a communication resource for business-related issues. When they are at work it could be a convenient tool and supports them in being efficient in their job tasks. Yet, at home, or in their free time the mobile phone could be a stressful tool not allowing them to escape those tasks. Their children on the other hand may experience the mobile phone as a source for fun and games, and a tool they long to

play with in their free time. In this sense, the mobile carries different meanings in the different contexts in which it is used, and by the different people who interact with it.

By physically interacting with the tools, humans are in a sense making changes to the tool and the material world surrounding them. The reason we create these tools is for accomplishing specific tasks in specific environments, and the more we interact with them the more they respond to us (Vygotsky, 1978). In the mobile example, the more communication the parent inputs into the mobile, in the form of apps or messages, the more response they will receive. The more games on the phone, the more interesting it will be for the children.

Often interaction with physical mediating artifacts is understood as existing externally from the person engaging with it, the interaction is orientated outside of them, as human's way of mastering nature. Whereas, psychological tools often mediate as a '*means of internal activity aimed at mastering oneself*' (Vygotsky, 1978). But this depends on the context of the situation in which the tool is being interacted upon.

In the social learning process, the combination of the individual's use of both the physical and psychological tools for mediating activity creates the higher psychological function of developmental change (Vygotsky, 1978, p.55). When applied to practical learning, mediating artifacts mediate the way learners experience a learning activity. Beetham & Sharpe, discuss the role mediating artifacts have when applied to various learning activities (2007). Depending on the context of the activity, the pedagogical goal, and the desired tasks to be done, 'different tools and resources can provide support and guidance' (p. 86), when the tools are applied to facilitate a specific learning activity.

The Flipped Learning model introduces videos for lectures, and opens class time for collaborative activities with peers, this can be seen in a sense as a way of combining the physical and psychological artifacts for learning, tools and dialogue. Further, to understand mediational activity, we need to look beyond the individual's interaction with these artifacts, and take into account the context for which these tools are being interacted with. For this reason, in introducing Flipped Learning as a model that incorporates several of a learner's social and physical environments for learning, the concepts of boundary objects and boundary crossing will be presented to look how these artifacts are experienced in different contexts.

4.6 Boundary Crossing and Boundary Objects

The concept of Boundary crossing addresses the movement of a person between the different social worlds to which they belong. The sociocultural approach to learning emphasizes the importance of seeing the learner within their entire environment and recognizing how our cognitive activity is influenced by our environments (Andersson & Andersson, 2008). Each particular environment is a social world of the people and things in it. This environment can be physical, social or cultural and is identified by the different aspects that make it up. Boundary crossing looks at how people transition and interact across their different social worlds, with consideration for each social world's particular characteristics (Andersson & Andersson, 2008, Akkerman & Bakker, 2011). For example, a student's social worlds of home and school have particular expectations for behavior, interaction, inclusion and members that belong. At home the student may not feel the expectation of having to know the correct answer to a homework problem as they are not expecting their parents to grade them or judge them (in most home situations). Whereas, within the school environment they may feel expectations to perform in order to receive a good grade or present what they know. Within the school boundaries there are classes, social interactions, peers, teachers and administration that may dictate their relationship to their own performance.

According to Akkerman and Bakker (2011) boundaries of differing social worlds can create 'a discontinuity in action or interaction [and] simultaneously suggest a sameness and continuity' (p. 133). This discontinuity or sameness may depend on many factors often related to expectations for those social worlds. The people who belong and move between these differing social worlds are called marginal. Marginal persons may find that their roles of identity and loyalty can be conflicting between these environments (Star & Griesemer, 1989). For example, a student who is raised in a strictly religious home, where parents teach a belief in Creationism, may conflict with the student attending a science class at school that teaches Evolution. The student may experience conflict in pleasing their parents' beliefs, yet wanting to please the teacher in order to get a good grade. Despite these conflicts of social worlds what is important to grasp is that, 'all learning involves boundaries' and that 'boundaries carry potential for learning' (Akkerman & Bakker, 2011, p.132 & 133). What this means is that within the different environments there are opportunities for different forms of interaction and therefore different development. This relates back to Vygotsky's meaning of learning as constructed in the interactions in which we partake. As learners move between their social

worlds the corresponding interactions in these social worlds contribute to constructing their knowledge, whatever knowledge that may be. This becomes a relevant concept when exploring Flipped Learning as the model entails reallocating the different learning activities to different environments.

People are not the only things that can move across boundaries and take different roles and meanings in differing social worlds, objects can also move between social worlds. As mentioned with mediating artifacts, the situations in which tools are used define their purpose and meaning. Tools that move between differing social worlds and take on new meanings are called Boundary objects.

Boundary object is an analytical concept that refers to an object that 'inhabit(s) several intersecting social worlds' (Star & Griesemer,1989, p.392). Susan Leigh Star and James R. Griesemer are attributed to developing the concept of boundary objects. In their 1989 article they wrote about the successful development of a zoological museum in California at the beginning of the 20th century, based on artifacts acting as boundary objects (Akkerman & Bakker, 2011). They looked at how the different departments of the museum, the researchers in the labs, administration, and shareholders, were able to collaborate through the related objects moving between the different places. Boundary objects refer to those objects that belong to more than one social space. When they move between those different social spaces they manage to maintain enough of their identifiable characteristics in each space that they create a type of bridge of understanding between the different spaces. The unique factor here is that each place has a different meaning for what that object is, called interpretative flexibility (Akkerman & Bakker, 2011). Therefore; boundary objects are perceived as flexible enough that they can be molded to fit the differing needs of each of the social worlds, yet solid enough that their identity remains stable in the varying places (Star & Griesemer, 1989). Boundary objects can be physical tools as well as abstract concepts whose meaning can vary depending on the context in which they are encountered. As the objects cross these borders they can present situations of misunderstanding as well as opportunities for bridge building between these different worlds (Star & Griesemer, 1989).

When discussing either boundary crossing or boundary objects the key to success is for all actors to have a common goal or a general understanding of the meaning and purpose of these places and things. In the context of Flipped Classroom, the idea of shifting the different environments for the student's active engagement, presents many opportunities for boundary

crossing and the creation of boundary objects. As boundaries are crossed and boundary objects move, the context creates different meanings for different actors, and in doing so interaction with these factors can lead to conflict or bridge building depending on how they are perceived by each person.

In summary, Sociocultural Learning theory is based on the understanding that knowledge is constructed through interaction with others and an indirect interaction with our environment through the use of mediational tools (Vygotsky, 1978, Wertsch, 1991). In this section we looked at the social processes that support learning and the varying interactions taking place that are part of constructing our knowledge. The Zone of Proximal Development is used to describe the distance of what a student can accomplish on their own and what they are able to achieve with the assistance of a competent other. Scaffolding explains the role of the competent other in making the constant evaluations of where the learner is in the learning process. These two concepts emphasize the importance of having a more knowledgeable someone available for the learner to guide them in completing tasks. The Flipped Learning model is designed to remove the need for the teacher to lecture during class time, and instead be present to assist in collaborative activities. The purpose is making the teacher available to evaluate and give feedback to the students as they engage in the more cognitively demanding activities. I also presented the term mediational artifacts. This term is used to help us understand how physical and psychological artifacts are tools in which we indirectly interact with our environments. How and when we use them affect how we interact in that environment and with the others present. The 'flipped' model introduces videos as a source for direct instruction instead of the usual physical presence of a teacher. The theoretical concept of mediational tools can assist us in understanding how students would interact differently with a video as opposed to their teacher present in class. Also, the students' experience with moving the lecture from the classroom to their home can mean they have different expectations for what they will get from the lecture. These concepts have been presented to show how Flipped Learning can be studied from a sociocultural perspective and how it is grounded in pedagogical theory. The terms boundary objects and boundary crossing are concepts that guide the study in how to analyze the swap in the students' instructional and activity-based environments. These concepts look at the learner's expectations for both the environments they inhabit and the objects that are a part of these places. The boundary objects can be seen to create bridges over the boundaries of the environments, but can also create a source for conflict if they do not fulfill the expectations of the learner. In this study these

theoretical concepts have been utilized to guide the empirical lens in which data was collected and analyzed. The sociocultural learning perspective has been the theoretical basis for which this study, and others, have understood the pedagogical relevance of Flipped Learning. Now I will introduce the case which this study is based on and the research study conducted.

5 Case description

A case study, according to Yin (2014), is meant 'to contribute to our knowledge of individual, group, organizational, social, political, and related phenomena' and is meant for studying social phenomenon in varying contexts (Yin, 2014, p.4). Flipped learning can be considered a contemporary phenomenon for a new student-centered approach to learning (Bishop & Verleger, 2013). A case study is recognized as using a single case as the purpose of research, as opposed to a broad inclusion of many cases (Denscombe, 2010). A phenomenological study is a methodological and philosophical approach where the point of view is to explain an event or happening from the everyday experiences, of those that have experienced it (Henry, et al., 2008). Phenomenology aims for detached reviews of our 'lived experiences' in a manner to study the human experience (Moran, 2001). For this project in the exploration of understanding Flipped Learning, the case is a 10th-grade Social Studies class and their experience of the phenomenon of a Flipped Classroom.

Following I will introduce the school, the teacher, and the class that took part in this study. I will also present Social Studies from the teacher's perspective. The subject chosen for this study is an important aspect as previous studies often focus on STEM disciplines. I will also explain my role as the researcher. The production of the videos for this study was a collaborative effort by myself and the teacher.

5.1 The school

For the purpose of anonymity for this study the school is called, Factory Street School. Factory Street is located in Oslo and is a remodeled factory building, meshing old and modern architecture. It is a fully integrated middle school and high school, covering grades 8 through 13. Factory Street has a diverse cultural student body of around 950 students. Walking into the main entrance you find the walls decorated with large posters of the students' photography and television screens displaying student performances. There is always activity in the common areas, with students and teachers moving about the different tables, sofas, and lounges. Most of the teaching staff has degrees at the master's and doctorate level. The staff is encouraged to work together within their subject matters and have strong collaboration amongst the teachers. Factory Street focuses on developing writing skills and all students are

supplied with school laptops. At the high school level, media and communication are the main study subjects.

5.2 The teacher

The teacher who agreed to be a part of this study expressed an interest for attempting Flipped Classroom and in general has an interest for trying out new learning techniques. He will further be referred to as, Charles. Charles has a degree in general education and a master's degree in Norwegian. He took additional studies in the United States focusing on Social Studies and has an educational interest for learning through storytelling. Charles has been a teacher at Factory Street School for four years of the 12 years he has been a teacher. He teaches the Norwegian Humanistic subjects; Norwegian, Social Studies, and the Norwegian religion and ethics course (KRLE). He involves himself in many extra projects and activities at Factory Street, including bringing in presenters from all walks of society and industry to talk to students about a range of topics including media, public service, corporate dynamics and many others. Charles and I were introduced by a common colleague and friend. I experience him as an excited multi-tasking, innovative, creative educator. Charles is described by his colleagues as someone who continuously involves himself in new projects in a continuous attempt to engage his students.

5.3 The class

The class group in this study is a 10th grade class, that have Charles as their contact teacher. They have had Charles as their teacher for three years, and he teaches three of their subjects, namely, Norwegian, Social Studies and KRLE. Charles reports that he has an unusual amount of hours with these students each week, usually 7-10 hours each week, compared to other classes. Based on their history together he experiences their collaboration as a class operating very much as a team. The class is made up of 29 students, 17 girls and 12 boys of the ages 15-16. The students' academic performance, according to Charles, is normal and at an average level for their grade and school. The class is uncharacteristically for Factory Street not very multi-culturally diverse.

5.4 The subject

Of the three subjects Charles teaches, a Social Studies lesson was chosen to be flipped. As mentioned in the literature review, there is limited research on Flipped learning in the social subjects and Charles had been wanting for some time to attempt a 'flipped' lesson with this class. He describes the subject of social studies as a subject that has a starting point in thoughts. It is meant as a subject to teach you how to understand the world with the purpose of being a part of it. This entails, according to Charles, learning how to express opinions on how the world is supposed to be. The purpose of social studies is to learn to see the connection in events, in when they happen and how, meaning the cause and effect.

In his Social studies course Charles often uses storytelling to engage the students in the current theme. In his opinion, the least the students can do to participate is ask questions. Above that, students can contribute to the discussion and thought process, to gain perspectives and ways of looking at things. He assigns little homework in this subject; if he does it is usually in the form of a film. This can either be documentaries or full film productions. For example, the students were advised to see the Hollywood movie *The Bridge of Spies*, to get the context of the atmosphere during the Cold War.

Working on this project together was a collaborative effort. Charles's pedagogical insight and experience as well as his mastery of the subject matter to be presented were an enriching and educational contribution that was vital to the project and the final product of the films. His relationship to the students and ability to explain was evident in the student responses. This will be addressed at a later time.

5.5 My role as researcher

For the past three years I have worked as an e-learning consultant for the training department of a global business software company. My role entails advising company employees in creating video training, knowledge transfer, and participant communication. My tasks involve editing raw training material videos and building interactive e-learning courses, referred to as learning objects. The purpose of my role is to create and advise in creating learning objects that are educational and communicative to a specified group of participants. The skills and guidance, both technologically and pedagogically, I have obtained in this position have contributed to an increasing competence in the area of creating online learning. These skills

include understanding visual design, evaluation of on-screen content pertaining to relevance and amount, length of learning objects, awareness for auditory and visual quality, and knowledge in presentation and distribution of learning objects.

Based on my and the teacher's backgrounds we were able to collaborate on creating videos that incorporated both pedagogical and design elements. Our first meetings involved working together and deciding upon a design, execution and appropriate time schedule.

We began by having a collaboration meeting to discuss video content and sharing competence in our respective fields. We agreed first that it was important that Charles should be presenting in the videos. This was based on best-practice that students relate better to subject matter when delivered by an expert that they trust (FlippedLearningNetwork, 2014). Once Charles filmed his 'lecture', I would take over and edit the films to make them more dynamic and digestible based on the experience I have had with editing. I advised first on the software he could utilize to film himself and which file formats I would need to be able to edit them. TechSmith Camtasia is a common software program used by people making informational and educational films and the one I currently use in my job. Many of the internal editing tools support creating visualizations. The software is a licensed product which I carry from my work. I was given managerial permission to use my work tools for this study. Charles was able to download a free 30-day trial to create his videos.

Once we established the framework for creating the films we discussed content and arrangements. Charles was clear about the information the videos needed to contain and which visual and auditory elements needed to be included. His pedagogical and historical expertise on the Cold War was evident and he approached the videos as he would have planned a regular lecture. A digression from this point, I will humbly admit that I had no real knowledge of the Cold War prior to this study; it was a subject I knew very little about. I can now say that I have learned something from these videos as well. It also played a role in editing the videos as I was not in a position to contribute with any subject matter content. My edits were solely esthetics and of communicative nature.

6 Flipped Classroom design

We planned to flip the lesson in early February. This was enough time after Christmas break that the students were back in a normal routine, and enough time before Winter break that the students were not in a final rush to be finished. The study, with planning design, producing, developing, observations, implementations, and interviews lasted over a two-month period. Charles and I met 1-2 times every other week and more often during the week of the flip. For this study, two video lectures about the Cold War were created and follow-up in-class activities planned as group presentations. Following is a description of these videos and the in-class activity that were designed to create a Flipped Classroom lesson.

6.1 Flipping the class

6.1.1 The videos

The intention behind the videos beyond the content it would contain, was to make the lectures work for video format. In a Flipped Classroom, the video lecture has been referred to as a recorded lecture (Gough et al., 2016). Bergmann & Sams in their book, *Flipped Learning for Social Studies Instruction*, (2015) address this issue and emphasize that Flipped Learning requires more than this. Designing online videos should require an element of design where there needs to be a conscious effort to make the content meet the medium (Bergmann & Sams, 2015, Gough et al., 2016). Ainsworth, (2006), addressed this issue when designing multiple representations. Ainsworth states that when *'learners can interact with an appropriate representation their performance is enhanced.'* (p. 183). In a research study done my Murray, et al., (2012) they presented their results from an online-survey study of students' perceptions participating in a Flipped Classroom. They outlined some guiding principles for creating tutorials to structure a class flip based on the students' response. Based on my previous experience with designing online learning, and these principles of design with focus on the learning goal, we designed the following videos for this project's Flipped Classroom study.

The first video covered introductory key players, terms and events pertaining to the Cold War. The second video was a presentation of the Cuban Missile Crisis, an effect of the Cold War, and the contributing factors to its occurrence.

The first video was a video lecture done by Charles himself, introducing the Cold War.

Figure 2 – Introduction Visual to Film 1 on the Cold War

It was recorded at his home on Camtasia. Charles sent me a PowerPoint with visuals to use in the videos and indicated where they belonged. I supplemented with additional visuals using Google images to enhance the visual aspect of the video. Charles chose music to include, wanting to enhance the feeling of the time period and severity of the political situation. The video lasted 10 minutes. As part of the editing process I included on-screen text to highlight key terms being discussed. These were put in text boxes and came on screen as Charles spoke. We chose to include at the beginning of the video an agenda of what the video would cover. At the end of the video these questions were repeated with a text question asking if the students were now able to answer these questions.

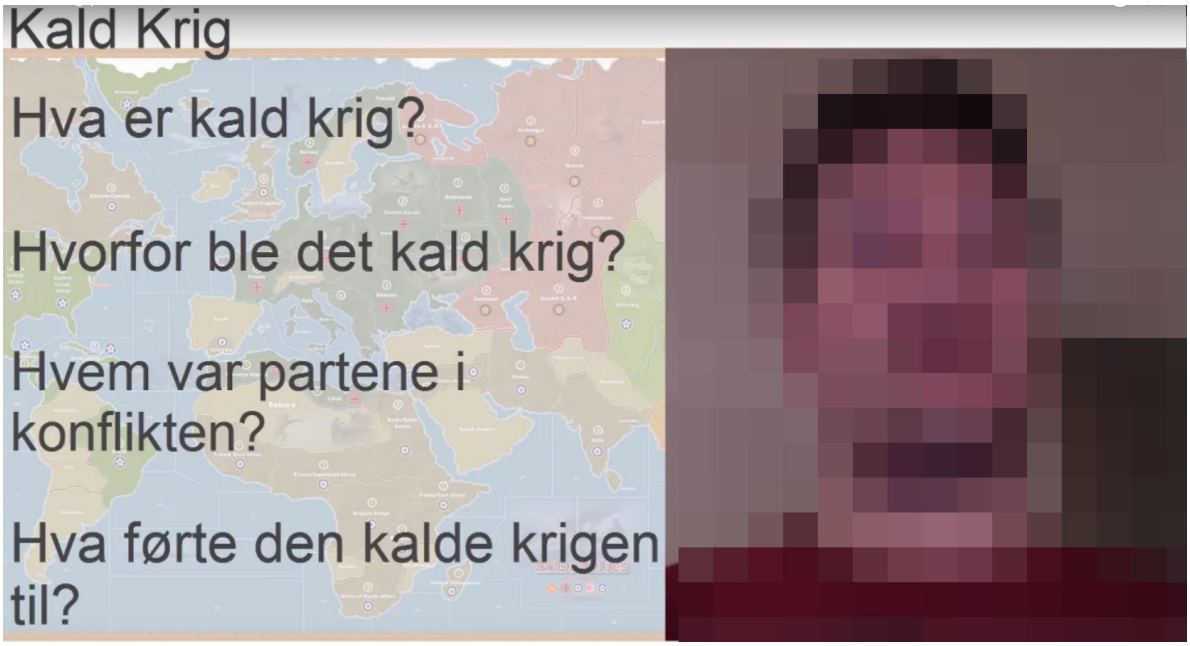

Figure 3 – Opening agenda for Cold War video

Throughout the film, text was included of important figures, concepts and terms. There was also a section with key terms and their definitions. The content of the video was a general introduction to the start of the Cold War, emerging from the Second World War and that nuclear crisis.

Figure 4 – Example of on-screen text of key concepts

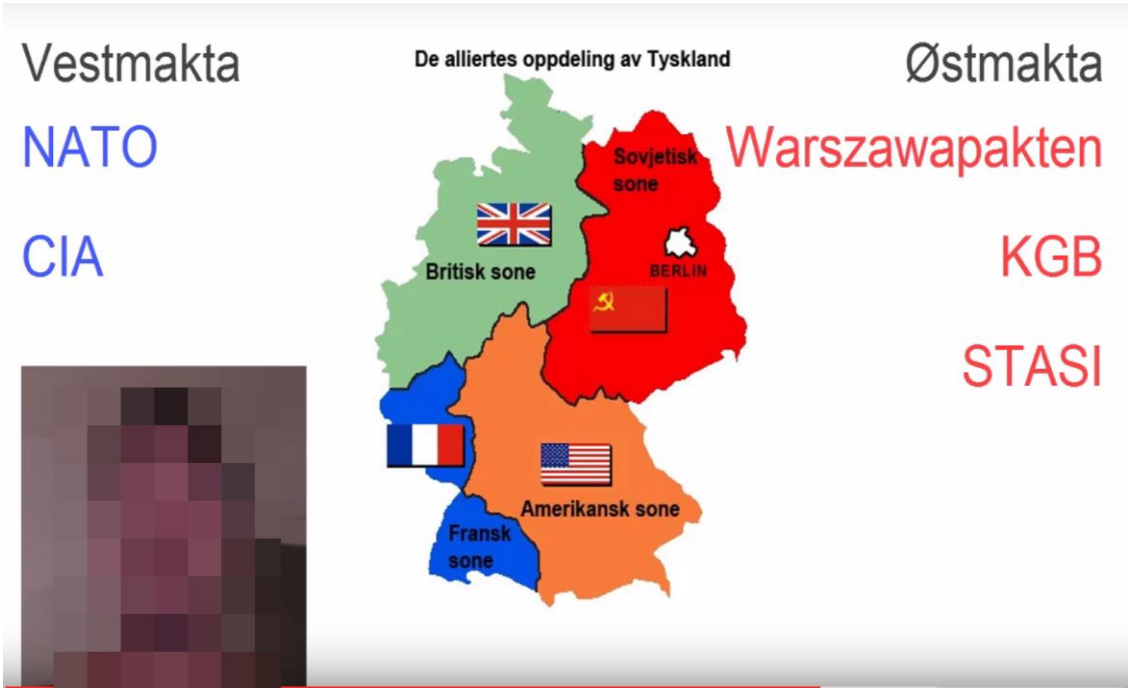

Figure 5 – Example of on-screen text with key terms

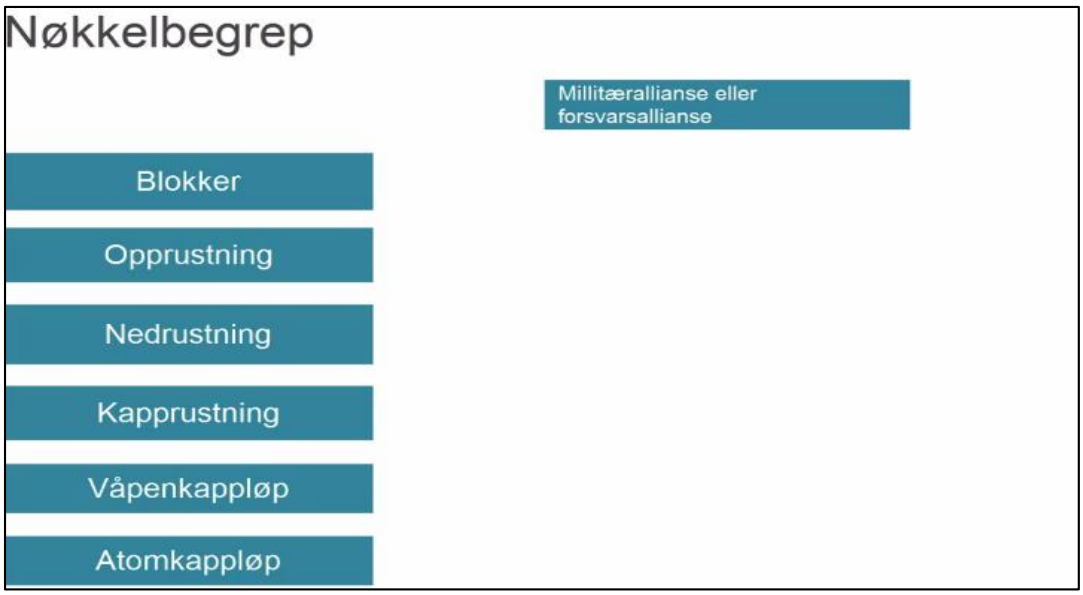

Figure 6 – Example from Video 1 of key terms with teacher explanations

Near the end of the video, the key terms (nøkkelbegrep) came up one at a time and Charles gave explanations for each term.

This video was uploaded to Charles' private YouTube channel. He included a few links at the end of the video to further sources pertaining to the topic. Links were uploaded to the students' online Learning Management System (LMS), ItsLearning (Figure 7). They were

uploaded a day apart, a Thursday and Friday respectively. Students were instructed to watch the videos and to take notes about how the video worked out.

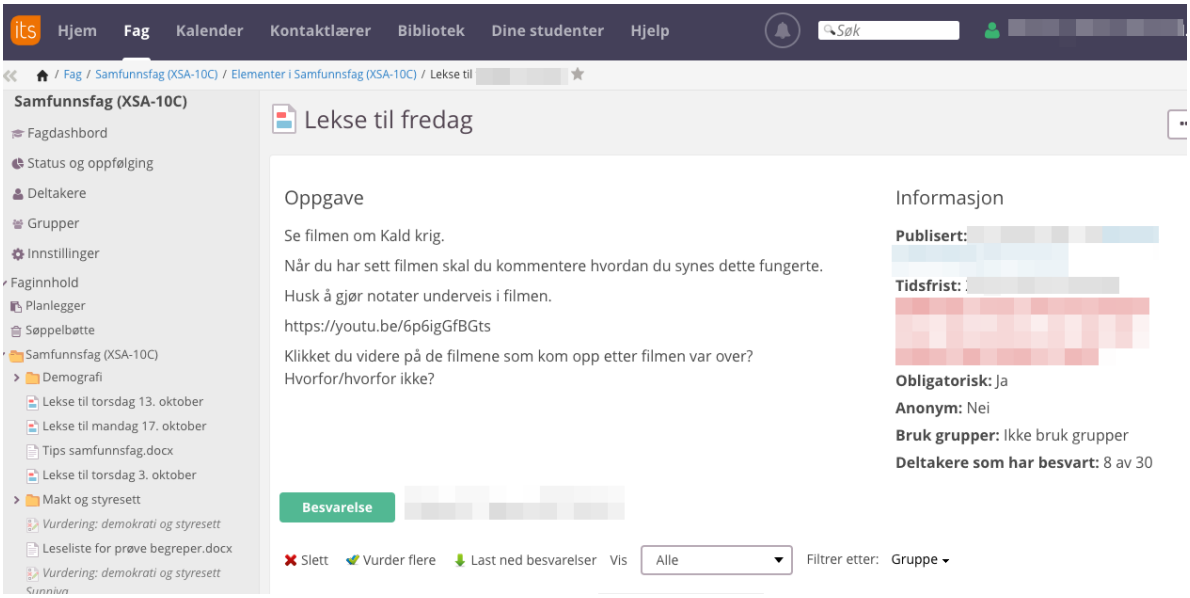

Figure 7 – Assignment uploaded into ItsLearning

The second video was about the Cuban Missile Crisis.

Figure 8 - Introduction Visual to Film 2 on the Cuban Missile Crisis

It was built up of original stock footage taken during the time period. The teacher provided an audio lecture presenting the core story of how the Cuban Missile Crisis was an effect of the Cold War. The video focused on explaining key happenings, key players, and effects this historical event had on the world. The video was meant as a 'model' for the students, to demonstrate how ideally information on these topics could be presented (Wood, et al.,1978). The video was planned as an example for how to do the class activity planned for the second part of the Flipped Classroom.

Figure 9 – Example from Video 2 of on-screen text with key players in the Cuban Missile Crisis

This video was six minutes long and was uploaded to my private Vimeo account and was protected by a password in order to access it.

6.1.2 The classroom activities

The next step in setting up a Flipped Classroom, is the in-class activities. The Monday after the videos were posted the students returned to class for their regularly scheduled Social Studies class. The group activities planned for this class, the structure and learning goal were planned by the teacher. We had one discussion about the structure of the in-class activities and agreed that the activity would have the students work together in groups. This was to reflect Bishop & Verleger's (2013) definition of Flipped Classroom that includes '*interactive group learning activities inside the classroom'* (p. 3).

The students were put into groups of three and were each dealt a topic considered an effect of the Cold War. As mentioned the second video on the Cuban Missile Crisis was an example of this type of event. The topics chosen for the class activity included, for example, the fall of the Berlin wall, the Angolan civil war, and the civil war in Vietnam. Once the students got their topics they had 20 minutes to work together in groups to prepare a presentation based on their topic. The presentations were to be conducted in class and present the key happenings, key players, causes and effects of the event, and any other contributing factors.

The two videos to be seen prior to class; the first introducing the Cold War, and the second presenting the Cuban Missile Crisis; and the classroom activities organized to present related events; were the components of this study incorporated to create the Flipped Classroom. Following I will present the methodological framework chosen to support this study in light of my two research questions: *how the students experience the Flipped Classroom*, and *what their experiences can tell us about Flipped Learning.*

7 Methodology

7.1 Qualitative phenomenological case study

Considering previous research, my chosen research questions and theoretical background, I have chosen to do a qualitative phenomenological case study. Previous studies on Flipped Learning studying students' or teachers' experience or perception of Flipped Learning have utilized qualitative methods (Strohmyer, 2016, Helgevold & Moen, 2015, Krumsvik & Jones, 2016). As opposed to studies that have utilized a quantitative approach looking at measuring comparisons, test scores, or learning outcomes (Warter-Perez & Dong, 2012). For the purpose of this study my interest is the students' experience, and therefore; my intention is to get the narratives of the students and get an insight into their experience of participating in a Flipped Classroom. I am looking to explore *how* the students respond and *what* themes arise in the data which, according to Silverman (2014), is conducive to a qualitative approach. According to Alvesson and Skoldberg (2009), 'qualitative methods… start from the perspective and actions of the subjects studied.' (p.7). This corresponds with the sociocultural approach to learning as learning is viewed through actions, environment, and experiences. For these reasons based on past research, the purpose of my research questions and theoretical basis, I have chosen qualitative research methods as guidance for this study.

This study aims to understand the Flipped Classroom model through the direct experiences of the students who participated. The 'face value' of what the participants say about this experience is seen through a phenomenological approach as a reaction to the specific phenomenon (Cohen, et al.,2011). This means that by this approach, these experiences are not studied by taking into account external factors of the participants' experiences but the direct experience of participating in the Flipped Classroom. Therefore; primary data in this study is done through semi-structured interviews with the students, as I will describe in Section 7.4, as this type of interview allows for participants to speak more openly about their experiences. Secondary data was collected in the form of in-class observations.

7.2 Observations

In this section I will present the observations that I did for this study. According to Cohen, et al., (2011) observations are a method that 'affords the investigator the opportunity to gather "live" data from naturally occurring social situations', (p. 456) as a means 'to discern ongoing behavior as it occurs' (p. 298). Therefore; for this study observations were conducted for several reasons. Overall, three observations took place in the classroom. The first observation day was prior to the start of the flip and the other two observation days were post video assignment. The first observation was to see the dynamics of this class and its students and get an understanding of the student-teacher relationship before flipping the lesson. It was also a way for the students to get used to my presence, if possible. Being present in their classroom over several days was a way to get the students to feel comfortable with me being there and build a relationship with them (Cohen, et al.,2011). I conducted what Cohen, et.al (2011) call a *participant observation* which requires the researcher to balance doing research and putting themselves at the participants' level. This type of observation is beneficial in wanting to create a rapport with the students in an attempt to get an insider look at their behavior. For this reason, the observations were intended to be used in assisting in selecting students to participate in interviews later on. This will be addressed in a later section.

Following I describe each of the three observation days, including my observations.

7.2.1 Observation - Day 1

The first day of observation took place in their Thursday Social Studies class. The purpose of this day was to introduce myself to the students, present the study and research intentions, and obtain participant consent. The students were presented with permission forms to be signed by them or to be taken home for review, signed and returned. All students were informed that the study was voluntary, and that at any time they could refuse to continue participation. Students were informed by Charles that participation was in no way connected to their grade or class performance. All students agreed to participate. Not all students agreed to be a part of individual interviews but all agreed to be on video and observed. He then spoke about Flipped Learning and told the students what videos the study would entail and their purpose. This observation day was also used as a way to get comfortable with the classroom, the students and observe the regular practice of the class. Therefore, the remainder of the first observation

day was done as a 'fly on the wall' method to observe the class not involved in 'flipped activities'. Charles gave an introduction of the Cold War telling stories from his family's history and relationship to the Cold War. Near the end of the class, which lasted 45 minutes, the students were also asked to comment on an NRK documentary they were assigned to watch the week prior. The documentary was a film about the Cold War and the international space race. I would like to note here, that this documentary was not part of this flipped classroom study, but a common practice of this teacher, finding relevant films for his students in order to contextualize the subject matter.

7.2.2 Observation - Day 2

The second observation day took place the following Monday, and was the main observation day that the 'flipped' classroom activities took place. On this day I prepared the classroom with two cameras and one audio recording device. I had an assistant with me to monitor all devices throughout the entire class. The class lasted an hour and a half. The students were again asked for their permission to be filmed and observed. All students agreed. Class began by first asking the students to write down what they thought about the videos. Immediately a student asked about something pertaining to content in the first film. Charles informed her that there would be time afterwards to address content-related questions. After two minutes, he asked the students to discuss with the person next to them what they liked and did not like with the videos. After three minutes, the students were asked to share in plenum. Students' first responses mentioned the length of the videos and wanting more on-screen key terms. Other students reported liking the video based on the specific 'need-to-know' information. After five minutes, the discussion moved to questions pertaining to the content of the films. The students started by asking about the current political temperature in the world and how this could relate to the Cold War. Charles referenced several times back to the videos and used terms and concepts from the videos. Several times he referenced visuals in the video, often saying things like *'…remember in the video…'* and '*…think about what you saw in the video.'* A few students asked questions about content they had seen and they were referenced back to watch the videos again. The term Marshal Help was mentioned. Some students became a bit flustered as they expressed not having heard this before. He mentioned that it was a term he did not cover in the videos and then gave a quick explanation of Marshal Help. This plenum discussion lasted 15 minutes.

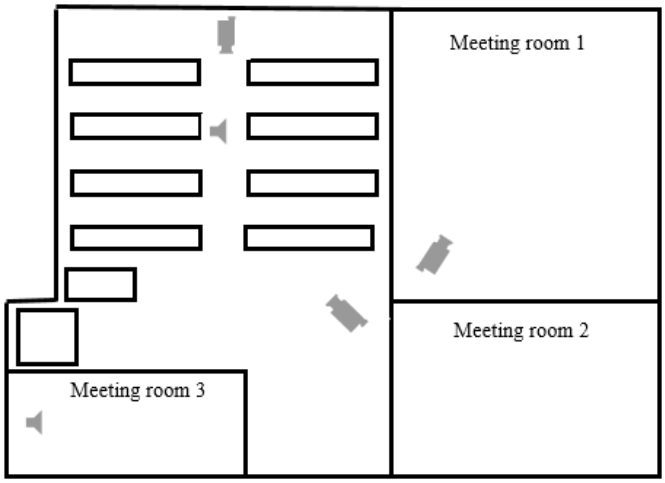

Figure 10 – Classroom map

Charles transitioned into telling the students about the in-class activity planned for the day. He then put the students into their groups of three and each was assigned a topic. Groups utilized the main room, as well as, the adjoining meeting rooms (Figure 10). A camera was first placed in the front of the main room and the back of the main room. During group activities, one camera was moved to Meeting room 1. The rooms placed with cameras were chosen based on the size and light. Two rooms were quite small and I did not want to make the students meeting in these rooms feel uncomfortable by having a camera too close. One of these small meeting rooms had an audio recorder placed in it with the students first agreeing that this was okay. In the other small meeting room without a recording device I more often frequented that room to observe with notes in person. As students began their group work, I circulated the rooms and observed the students working together. I occasionally engaged the students and asked how the groups were going and how they were coming along. Initial responses were that there wasn't any information in the videos on their topic. No one mentioned the second video. Several groups said that they were using Google and Wikipedia as resources. One group, in the main room, I observed sat watching the video before beginning on creating a presentation on their topic. When I inquired what they were doing they responded that they had not seen the videos prior to class.

During the group work, Charles circulated the classroom and spoke with each of the groups. He sporadically stopped by groups to ask how they were doing, and responded to groups that asked his help or had a question. From the audio recording taken in meeting room 3, the group was concerned with having too much information and not sure what was important to include in the presentation. Charles is heard mentioning the second video as an example of

what information to include. He talks about how to abstract the key elements pertaining to their topic. He continuously circulated and made himself available for questions. Questions were both subject matter related and project requirement related. After 40 minutes the groups were asked to present. This left time for four group presentations.

Groups stood at the front of the main room and showed PowerPoint or Prezi presentations on a projector. Students in class watched or took notes, often stopping the presentations to ask for something to be repeated. They were asked finally if they could upload the presentation to a common platform so everyone had access. During the presentation Charles stood as an observer, contributing at certain points when the situation required it. This usually meant when the presenters were asked questions by fellow students they didn't know the answer to. He also facilitated interruptions. Four groups out of seven presented, then class ended abruptly after the fourth group, the remaining three groups were informed they would present at a later time.

7.2.3 Observation - Day 3

The third observation day, the following Thursday, was meant as a follow-up to see the last of the class interaction. No cameras were used this day and I again took the role of 'fly on the wall'. Charles opted to give a quick review of the concept of Marshall Help, a term he had taken out of the first video in an effort to keep the first video under 10 minutes. He moved throughout the class as he spoke and wrote with marker on the whiteboard. Students took notes and often stopped him to repeat dates and names or things they didn't hear. At one point he asked a question and it was quiet in the class. Suddenly he threw the marker in his hand excitedly up at the ceiling as he answered the question. It made a loud noise, breaking the silence. All the students jumped. The students became a bit chattier at this point and he continued explaining the topic. The class ended after 45 minutes with the topic of Marshall Help taking the entire 45 minutes. As students filed out they asked about the remaining presentations and were told they would get the chance at a later class time. This final observation was done exactly one week following the distribution of the first video link.

7.3 Student selection

From the observations of the class interaction and group projects, eight students were chosen for interviews, four for individual interview and four for a group interview (Figure 11). Students were approached at the end of the third observation day and asked if they would be willing to be interviewed. In order to represent a diverse range of students the teacher and I collaborated on student selection. I chose students based on my observations on the three different days. Charles was able to contribute with selecting students based on variances in class participation, learning difficulties, interest in the subject matter, and reflectiveness, yet he did not share with me which students this pertained to account for bias. The purpose was to get a varied group of students to interview.

Students	Interview Type
Isak	Individual
William	Individual
Ella	Individual
Nora	Individual
Martin, Anne, Berit, Lars	Group

Figure 11 – Students selected for individual or group interviews

Students were chosen based on responses to reflections on the videos, engagement, or lack thereof during discussion, their interaction during their group work, and their presentations. They were also chosen to represent an equal selection of boys and girls. Nora was chosen based on her response during the group work about how the project was going. During the group activities she expressed a dislike for the activity and Charles's choice of a time frame for group activities. She stated knowing what 'Flipped Learning' was and that she felt the activity did not reflect this. Her presentation group was one of the groups that presented that day and she spoke the most of the three students presenting. She gave a very concise and informative presentation of the topic. Ella was chosen as she was the first one to ask a question in plenum based on content in the videos. William was asked to be interviewed as during the plenum discussion, he continued to play video games on his laptop, yet was continuously participating in the classroom discussion. The rest of the students were based on suggestions from Charles on students that he felt completed the varied student group.

In selecting students for interviews, to account for selection bias, the observation days were a way for me to see students involved in the activity and select students based on a variety of behaviors during the activity. Charles's history with and knowledge of the students in his class was a way to confirm a varied selection of students was chosen without bias on behalf of me as the researcher.

7.4 Interviews

The purpose of this study is to explore Flipped Learning through how the students experience the Flipped Classroom model. For this study *experience* is understood as the students' attitude, opinions, recounts, and understanding of the situation. To explore this aspect, it is the students' personal narratives and reflections of trying out a flipped classroom approach that I am after in order to obtain their experiences. Therefore; semi-structured, or open-ended, interviews have been chosen as the primary data source. According to Silverman (2014), open-ended interviews are often used to get a respondent to tell their real-life experience and incorporate their meanings into their responses. Considering that the interviewees are teenage middle-school students, interviews of this type are considered less intimidating and a lighter way of building up a rapport with the students. The flexibility allowed by this structure of interview provides the students more time to reflect and tell their story in their language and vocabulary.

7.4.1 Conducting the interviews

I conducted the interviews one week later following the last observation, four individual interviews on Thursday and one group interview on Friday. The idea was to interview in a time period not too distant to the Flipped Classroom in order to keep the experience fresh in the students' minds. The interviews occurred during the students' Norwegian lesson both on

Thursday and Friday. Charles planned both classes as a free-work hour to allot time for students to be interviewed and to not miss out on other lessons or lectures. Interviews were conducted in Meeting room 2 (Figure10). This was done to make sure the interviews happened in a place the students were used to and for me to take into consideration their comfort (Cohen, et al.,2011). All interviews were recorded using an audio recording device. The interviews lasted between 8-25 minutes with the group interview lasting the longest. I

chose to include a group interview with the intention to generate responses in the form of a dialogue. The advantage with group interviews is that it opens up for a discussion and the possibility for a wider range of responses (Cohen, et al.,2011).

7.4.2 Interview guide

The interviews began by recapping the purpose of the project. For each interview I told the students that responses were not right or wrong, and that it was their personal experience that was the purpose of the study. They were encouraged to ask questions if anything was misunderstood, and reminded that this was voluntary and in no way affected their class grade or participation. Interviews were conducted in Norwegian, and students were informed to ask if any questions were misunderstood or misspoken.

An interview guide was used to guide the interview questions (Attachment 2). The questions were semi-structured, and organized in previously chosen topics. A semi-structured interview method was specifically chosen to leave room for openness in the students' responses something Silverman (2014) states, 'enables respondents to demonstrate their unique way of looking at the world' (p.179). The purpose was to conduct interviews in an exploratory manner, in consideration for my first research question focusing on the students' experience. Therefore; I did not want too much rigidity in the questioning.

The areas of the interview guide were broken down into four sections: *their regular homework, the videos, their regular class, and the in-class activities.* The questions were structured in this manner to reflect the experience at home and at school, the two environments associated with Flipped Classroom. I used the questions to prompt discussion if needed. The students were generally talkative and responded easily. Additional questions came as follow-ups to responses the students came with, such as '*…can you tell me more about…?'.* When the responses went too far off topic the interview guide was used to prompt a further dialogue related to that topic.

It is worth mentioning that many of the students expressed feeling time pressure at this time of the year as they are in their final year of middle school. They were overwhelmed with many projects and approaching exams. I took this into consideration and chose not to push their time beyond what I felt they were relaxed with during the interviews. Although the questions were not of a sensitive nature, according to Cohen et al., (2011) educational

research can be considered a sensitive area, therefore; the researcher needs to be considerate of the context for which the subjects are participating including their agenda. It was important for me as the researcher to respect the students' time and comfort as to not make this a negative experience for them. Nor did I want to jeopardize their responses if they were just going to rush through to end the interview. Therefore; each interview was conducted in a time frame I felt the students were comfortable with. When the students' answers began to be shorter and repetitive, or if they began eyeing the door, I made the opportunity to wind the interview down. This may mean that in the end I did not get as many responses to the questions as I might have if I had pushed the interviews longer, but then I may have jeopardized the honesty of the responses. In the end I chose a balance of time in which the students remained relaxed in the interviews.

I ended each interview asking if there was anything else they would like to add. Two of the interviews ended with an abrupt '*nothing*'. The other three interviews produced additional perceptions and reflections about the videos. Some students gave suggestions for improvements or elements they liked. They were asked if they could be contacted for follow-up interviews if needed and all replied that that would be fine.

7.5 Quality concerns

7.5.1 Validity

When using interviews as a data collection method in research, a concern the researcher needs to consider is securing that the interview questions truly measure what they are intended to measure (Cohen, et al., 2011). In Kleven, (2007) the purpose of validity in research is to secure the trustworthiness of the inferences made on the data, which means the importance of securing the truth in the data. For researching the students' experiences in an attempt to explore Flipped Learning, the validation of my data analysis depends on the ability of the interview questions to retrieve honest responses from the students related to their experience. For this study the important factor to control for was to make sure the students felt comfortable with me to speak openly and not feel threated by the situation. This is first why the interviews were conducted in a room the students were familiar with, with the teacher nearby.

The presence of a researcher can make students feel intimidated and cause them to only respond to what they think the researcher wants to hear (Cohen, et al., 2011). I took this into consideration and planned to use the introductions to the interviews to begin slowly in the questioning and not come off as threatening. I reminded the students that the interviews were voluntary, and that their responses were completely anonymous. The interview questions were also structured to begin with easier questions pertaining to their regular homework. I didn't want to begin straight away asking them to tell about their experience.

Another issue in interviewing students is establishing trust (Cohen, et al.,2011). This is why the first observation day was considered important, not only for me to observe the class, but for the class to have an opportunity to get used to my presence in the classroom. It was to show the students that the teacher trusted my presence in their classroom as well.

As I was both the interviewer and observer I related the students' responses when I spoke with them during observation and matched them to responses during the interviews. Silverman (2014) claims that 'comparing different kinds of data and different methods' is a way to corroborate findings (p. 91). Student responses in the interviews were corroborated with student responses from the observation video data. This was by having spent time observing the students in 3 different observation days, seeing them in the hallways in my many visits to the school to meet with Charles, and experiencing their behavior during the interviews.

Another possible threat to validity that I would like to address is the ease of bias from either my side or the students'. Bias comes in how either of us in the interview perceives the other person either positively or negatively, or in how leaning questions can be asked to the students. According to Cohen, et.al (2011), bias can be reduced to a certain degree in having structure in the interview questions. The interview guide was used as a source to make sure each student was asked a set of similar questions in a similar format to avoid leading questions (Cohen, et al.,2011). Yet, the interviews were meant to be exploratory, and therefore the questions remained as open as possible.

7.5.2 Reliability

Reliability addresses the issue of repetition in research (Silverman, 2014, Cohen, et al., 2011). The idea is that if someone else were to conduct my study again what is the possibility that

the study would produce the same results I have found. Silverman (2014) presents transparency in the research process that accounts for reliability. I have described the research process and aspects of this study in as detailed manner as possible without sacrificing anonymity of the study's participants. All interviews have been audio recorded, as well as, the main observation day has been video recorded. I have been present for all observations included in this study and personally conducted all five interviews. Reliability for interview data depends on all the interviewees understanding the questions in the same way (Silverman, 2014). As I conducted all interviews based on the same interview guide topics, I was able to address the scope for the questions asked. I am not an experienced interviewer, therefor; consistency for how the questions were asked varied, I took this into account by asking the same questions in several ways. As I was after the students' narratives, it occurred often that the students received a questions and came in a flow of response.

Reliability was also accounted for in relating this study's chosen methods to previous research and literature. (Gough, et al., 2016, Sohrabi & Iraj, 2015, Strohmyer, 2016).

7.5.3 Ethical considerations

Early this year this research project was approved by the Norwegian Centre for Research Data (NSD) (Attachment 1). I have conducted this study according to the guidelines of *The National Research Ethics Committee (NESH, Den nasjonale forskningsetiske komite)*. Ethical considerations are in place to protect the participants' integrity (NESH, 2016). This requires obtaining consent of those partaking in the study and assuring the anonymity of their responses. In this study consideration was taken was for the protection of children. The students in this study were between the ages of 15-16 years. According to NESH, the participants are of the age to provide their own consent to participate in research. As students they may feel vulnerable in considering their teacher's perception of them (Cohen, et al., 2011). The students were informed first by the teacher on several occasions that the study was completely voluntary and had no connection to their class participation or grade. This was reiterated in an informational consent form. Participants were provided with the consent form and asked to read, sign and return if they agreed to participate (Attachment 3). Participation entailed being observed, filmed, audio recorded, and possibly interview. The teacher took consideration to inform the students' parents through the classes' parent

Facebook page. All parents gave their approval for the project in addition to all students agreeing to participate.

Students were again informed of their voluntary status prior to interviews and assured of the anonymity of not only their identity but of their responses.

Anonymity is also an important ethical factor to consider. Therefore, all real names of participants the participants have been changed for the purpose of this study. All recorded data has been stored on a password-locked PC that only I as the researcher has access to.

7.6 Data analysis

Based on the data collected from these interviews I have chosen to conduct a thematic analysis to highlight commonalities and patterns in the student's responses in reference to their experience with the Flipped Learning lesson. Thematic analysis is an approach to analyzing qualitative data 'that involves identifying themes or patterns of cultural meaning' (Lapadat, 2010, p.2). Through coding and categorizing themes in the data the purpose is to identify commonalities and relationships within that data in order to make meaning of the content. Coding, according to Lapadat, is a process which entails closely inspecting and labeling recurrent themes, similarities and passages (Lapadat, 2010). This type of analysis has focus on the participants' authentic responses and gathering their stories of what they experienced with the aim to gain 'access to how the social world is lived' (Silverman, 2014, p.213).

To conduct the thematic analysis, once the interviews were completed, they were transcribed, coded and categorized. I chose to do the transcriptions myself to get closer to the data and connect with the responses. Part of this process entailed remembering the tones of the responses, reflecting on how the questions were asked, which follow-up questions were asked and possible gaps in the questioning. The transcriptions were done in Norwegian and as citations were abstracted they were translated by me into English. I transcribed all interviews in the week following the interviews. This was to keep the context of the interviews fresh in my mind. Using an inductive approach, the five interview transcripts were closely reviewed and coded, categorized and categorized into themes.

Guided by the two research questions and the theoretical framework for this study, the analysis began by going into the data and observing which patterns emerged from the students' responses. This started by giving codes to different topics and organizing them into categories. Initial interaction with the interviews revealed that the students had something to say on the topic. A few were very keen to express the positive experience they had with having the videos. Other students talked about the videos in a language that resembled a regular studying regimen. At times the tone of their responses resembled something other than their own responses, a possible repetition of what they have been told by a teacher or parent, or an effort to please me, the researcher (Cohen, et al.,2011), yet this is common in interviews with students and I was prepared that student responses would entail such a factor. It was important in analysis to be aware of this and treat the responses as such. Extractions were chosen based on their experience as they explained it. As patterns emerged it was a way of securing their responses when they related to others' or were similar to other responses. With these considerations in place, following are the results of the thematic analysis and the patterns that arose from the students' experiences.

8 Analysis of the students' experience with Flipped Learning

Flipped Learning is a learning model that changes up the environments where learning activities occur, in order to create dynamic learning experiences, and a varied approach to increasing student achievement (Gough et al., 2016). By recording lectures teachers are providing a tool for students to engage in direct instruction at a time, place and pace that is fitting for the students (Gough, et al., 2016, O'Flaherty & Phillips, 2015, Murray, et al.,2015, Strohmyer, 2016). Students are supposed to prepare themselves before class by watching these videos and understanding the content. By removing the lecture from the classroom, the class time is opened up for more peer interaction and teacher guided assignments (Hamdan, et al., 2013). Students are then expected to be ready to participate in a more dynamic interactive classroom. This project aims to get the students' experience of this phenomena in order to get a better understanding of what Flipped Learning means in practice. To accomplish this, a thematic analysis has been chosen to highlight the main patterns that arise in the students' experiences.

The themes that arose in the interviews reflected experiences the students had at home with the videos and at school with the in-class activities. In this respect, the themes in this analysis are organized in this order reflecting the two learning environments. This is done in an effort to answer the first research question: *How do students experience the Flipped Classroom?* by presenting the narrative of how they experienced Flipped Classroom in the different environments. The first three themes look at the students' home experience which entailed *Working with the videos* and *Preparing for class.* The theme *Class discussions,* starts looking at how the students' experience at home crossed over into their school environment. With support of the concept of mediating artifacts the analysis will see how context affects the students' experiences with the videos. The concept of Boundary crossing comes in when seeing how the students felt the videos prepared them for class. The last themes will focus on how the students reported on their classroom experience. This was shown in how they talked about *connecting the videos to the classroom activities* and *Working on group projects in class time*. The concept of Boundary crossing again will help us to understand the potential bridges the videos make between the students' two social worlds. We will look at the concept of scaffolding to look at how the students experience the peer presentations. For each theme

reflections will be made to understand what these experiences meant for the students' learning, and understanding of Flipped Learning.

8.1 Working with the videos

The video lectures were first assigned to the students as homework, and they were asked to watch the videos and take notes before returning to the next class (Figure 7). In this theme the students share their experiences with how they interacted with the videos. This could have meant anywhere the students had chosen to do this assignment, yet all respondents reported seeing the videos at home, but their experiences of where and how they watched them varied.

When asked to talk about their experience watching the videos, Ella, who watched the videos with a peer, talked about her experience with the videos as 'working with the videos' which she described as:

> *'We scrolled back and forth several times. Just to get it, get it clearly. And then we saw it after we had answered all the questions, then I saw it one more time, after we had taken notes just to make sure that I understood.' (Ella)*

A few students took the approach of treating the films as they would any other homework assignment:

> *'I did it exactly like I did my other homework, I sat and looked at my Mac in my room and took notes.'(Berit)*

> *'Same, watched them on my PC, and took notes.' (Martin)*

Nora reported watching the videos in her parents' home office as *'it's a nice place to sit to not be disturbed.'* Anne meant that to watch the videos *'it needed to be calm, to hear what was being said'* this she noticed was a contrast to their other homework which was *'a bit okay with a bit of noise in the background.'* Anne also pointed out that it also needed to be quiet in order to take notes.

Yet, Lars reported a different experience with 'working with the videos. He shared the following:

> *'Also, you could have headphones in your mobile, and just listen, do it like that really, like a few times in my room, and then in the living room actually on the sofa, while others watched TV, maybe not so wise, but I did that at least.' (Lars)*

From these initial experiences we see three actions emerging from the interviews that identified how the students 'worked with the videos' as Ella referred to it. These actions were notetaking, watching the videos several times, and scrolling back and forth in the videos. A common pattern for notetaking arose from the students' experience of having on-screen text to work from in the videos. Watching the videos several times, and scrolling were associated with repeating content and interactions the students engaged in to understand the content better.

The interviews revealed that the students did not have a similar pattern for the situation in which they watched the videos, nor did they work with them in the same way. Patterns of similarities and contrast arise as I look at the various ways the students 'worked with the videos.'

8.1.1 Notetaking

The students' approaches to notetaking varied depending on if they took notes or not. Berit meant that she needed to take notes because, *'It sticks better if you take notes...so if you get to write it down ...then you often remember it better.'* Whereas Martin, who responded positively to having videos, due to the convenience of varied digital options for notetaking said this:

> *'...and then the only thing you need, you can also take notes on your mobile, you also have your own programs on your PC, you can take notes for example in OneNote or Word, or Notepad or Notepad ++, WordPad, so on, and so on.'*

Notetaking when it came to the videos was connected with the on-screen text. It was understood as the indicator for which points were important to focus on, something the students experienced as a positive aspect of the videos.

> *'The first video was, I think, the best as there were some key points (on-screen text), if I wasn't able to follow along, then there were some explanations.' (Anne)*

Here Anne is referring to the first video where key terms came up at the end (Figure 6). Berit later agrees and suggests that *'if there had been more notes in the video, then maybe it would have helped us that like to write better.'* Although, Lars had a different approach to taking notes. He was positive to the videos because he meant you could *'pick up information even if you don't take a ton of notes, you are able to follow along.'* This may have to do with the

simplicity of the on-screen text and the association the students make to when Charles writes on the board in class. In a conversation in the group interview the students discussed this:

> Anne: *'If there is a lot of information at the same time, then it's difficult to know what is relevant, because, Charles, he writes on the board in class, and then we know what is important to focus on, and that's why in the video there were some key points (on screen text)'*
> Berit: *'NICE'*
> Martin: *'It was quite easy, just write down those, because then you know that that was important to focus on.'*
> Lars: *'It was easy.'*

Here we start seeing the students making associations from working with the videos at home to having a lecture in class. When the students start making these relations boundary crossing occurs as they start connecting their different social worlds through the activity of taking notes. Ella talks about her experience while at home with the videos and she begins relating to how this experience compares with what she normally experiences in class.

> *'...and I learned a lot. I especially liked that it wasn't just Charles talking but that there also came up some key words or notes while he was talking, because then it was easier to know what you were supposed to take notes on because then it's almost like having a regular lecture because you write down what he writes on the board and then it's almost the same, like there is some text then you know what you should write down and focus on.' (Ella)*

By bridging these two experiences the students have been able to understand what is important to focus on in the videos. They recognize the on-screen text as important as it was presented by Charles similar to what he would write on the board, as Ella repeated *'because then you knew, as I said earlier, what you were supposed to take notes for.'* The on-screen text mediates how the students experience the video when engaging in notetaking. In this context they seem to experience the videos as an instruction, similar to a lecture.

For students that did not take notes, being able to watch the videos several times seemed to be a substitute for taking notes, as William describes here in his experience:

> *'I didn't take any notes, because I didn't want to do that but what I did do, I watched them (the videos) one time, then I ate, then I played video games, then I watched them one more time, and then I scrolled back and forth and watched them several times so that it would be repeated.'*

Here William does not make the same connections from the videos to the classroom as the others have done. What is seen in this theme, that although a simple activity, the students' reports on how they take notes while watching the videos. The similarities for students wanting to take notes is that they are for remembering the content and having notes to review for their exams. As Ella shared if she were to be brought up for an exam in this subject she would *'watch the videos, and look at my old notes.'* Other students, meant that they did not need to write anything down as they easily remember content.

8.1.2 Watching the video several times

In line with previous research (Strohmyer, 2016) the students reported a positive experience in being able to watch the films several times. It is also a theme that was described as 'working with the videos. Being able to watch the videos several times was talked about by other students, as a method for double checking what they understood:

> *'And then we watched it after we had answered all the questions, so then we watched it, or I watched it one more time after we had taken notes just to make sure that I had understood and could like…and then we answered the questions he had set up in video 1.' (Ella)*

By being able to watch the videos several times, it seems that the students have used the film as a tool for scaffolding in the form of feedback. Referring back to the concept of scaffolding it i*nvolves evaluating, giving feedback, and fading assistance, (Section 4.4, in Wood et al.,1976).* In repeating the film Ella first attempts to answer the questions at the end of the video, and then watches the video again to check if gets the questions correct. In this sense she has taken an active role in confirming her own understanding of the subject matter.

The students often mentioned the length of the films as an aspect that made it possible for them to watch the videos several times. The short format of the videos meant that the students '*…could just scroll back and forth and write notes and (….) see it several times in just 10 minutes' (William).*

> *'Actually, I think that it's enough with 10 minutes, max a 10-minute video because then you can watch it several times, or when you are finished with your notes, watched the film while taking notes, then you can watch one more time quickly to just double check it again.' (Ella)*

The short films meant that the students seemed to be inclined to become more active with the video and not only passive watchers of the content. Isak shared that the shorter format also made the videos *'interesting to watch'* and *so much more fun than when we have regular homework.*'

An aspect of scaffolding is the ability to keep up the interest of the learner (Wood, et al., 1976), in this sense the short format of the videos seems to have been able to act in this manner. As Ella shares:

> '*It felt like homework, but they were really exciting videos, I learned a lot and it wasn't like you lost focus and thought they were boring,'*

The videos contained visuals, a presenter and music, yet a possible aspect of the videos that the students felt made it less boring could be that they were able to scroll back and forth. The third action and the one talked about the most was being able to scroll through the videos. Scrolling is understood as the act of rewinding, forwarding and pausing the film.

8.1.3 Scrolling

All of the students talked about being able to scroll through the video. Scrolling through the video was the action students took in order to understand the content. When they talk about scrolling they often talked about it when they talked about wanting to understand the content. When students felt they didn't understand they reverted to scrolling through the film to repeat it as a means to understand.

> *'The thing is, that regular homework, is that when you don't understand something you don't know what you are supposed to do. But a video, you can just rewind and watch it again. Then you understand so much more. (Isak)*

As a means to understanding the content, *'...we scrolled back and forth several times, just to get it ...get it clearly' (Ella).* Simply, interacting with the videos by scrolling the students were able to control the pace of the video, which seemed to be their way of controlling the pace of the information. On Observation day 3 (Section 7.2.3), the students often stopped the teacher while lecturing when they had not understood something or needed something repeated. In working with the videos, the students seem to revert to scrolling when this happens. '*So if you haven't understood something you can just scroll, and that's really nice' (Isak).*

As Isak mentioned in the first citation, often at home with regular homework they do not know what to do if they don't understand. Scrolling was an action the students took instead of seeking other means or resources to aid them in understanding the content. This then goes back to them watching the video several times, and using the questions to confirm they had understood. This was seen as different from working with the book as William and Ella experienced:

> *'…because, if there is something that I am struggling to read, if I haven't really understood or have forgotten, then it's a bit like, if Charles asks about it in class, then I'm a bit unsure… but in the videos, I think it was much easier to understand because then you could just rewind instead of having to read a whole page again just because there was one thing you didn't understand.' (William)*

> *'…but video, it goes so quickly, right? It goes so much quicker than reading carefully, "were the notes right?", but watching a video then it's explained then it's like "ok, ok, ok."' (Ella)*

Being able to scroll and play the video several times was especially seen as beneficial if the students considered the material more complex. Here Nora discusses this aspect when talking about Flipped Classroom in the context of complicated subject matter:

> *'Then I think that the Flipped Classroom thing can be helpful for a lot of students to get it in a way (they) understand, more than, (…), if it is a bit more detailed than "what happens", then you can rewind and write down and see and try to understand it better…' (Nora)*

In trying to understand the content the students seem to experience the videos as a tool they had control over to mediate repetition as a means for understanding, in this context the students experienced the videos less of a lecture. When asked if the videos felt like homework Ella responded:

> *'Yes, but it was a little, it was like sitting in your own lecture in a way…because…, but, you could rewind instead of disturbing all the others in class with a question only you had. Then you could sit alone and work through it and rewind and listen to what he said, and then come back to class and ask the question related to that' (Ella)*

Boundary crossing seems to occur as the students talk about their awareness of being able to take questions back to the classroom. It seemed that when the students reached a point that they no longer understood through scrolling, they knew that they could go back to class with those to be answered. Nora followed up to her earlier statement about complicated subject

matter, *'And if you had a question for the teacher then you could just ask the next day or the next class'* Here she seems to identify Charles as the source for the right answer.

This came out in Anne's statement when sharing her experience with watching the videos, she did not relate the scrolling in the same manner, for the purpose that Charles is able to explain things differently. Not just repeat content in the same way.

> *'But you don't get to ask when you are wondering something, and often [Charles] can repeat himself in class, in a way to confirm, in a way that is understood in another way. So it's not exactly the same, but, because, they (the films) they go right to the case, and that can work too.'*

Yet, she also seems to experience that the direct format of the content in the video might work as a way of not having to have things explained many different ways. This will be addressed in a later theme about preparing for class (Section 8.3).

The students experience being able to scroll in the videos as a positive thing with having the videos, especially when they know they still have the opportunity to ask questions the next day. If the expectations of the students are not met by the teacher in class, the misunderstanding and conflict can occur in crossing the boundaries between their home and their class when it comes to asking questions (Akkerman & Bakker, 2011).

> *'... but it's like if you come to class and you have a question and it doesn't get answered, or it's like "no, we have to take that..." or "...we can't do that now...", then it's a bit difficult.' (Ella)*

8.2 Classroom discussion

Having the questions to take back to class was seen as a positive thing as the teacher was available to help you understand. This theme reflects the students' responses to how they experience the videos in relation to having a classroom discussion.

8.2.1 Iteration of content in class

The students meant that it was a positive thing that they had a bit of repetition when they returned to class after having seen the videos. Because even if they understood what was happening in the video, they seem to like having the confirmation from the teacher that they understood it correctly.

'I experienced it as ok really, because I feel, I also like that you can explain a little bit at school also and that it's not just e-learning in a way where you sit home and watch a video by yourself.' (Ella)

Wanting to have some repetition at school was a way to also *'bring up other themes and then we could ask direct questions about that,' (Anne).* Going through the material in class was also important for the students as they talk about learning with others. In light of the sociocultural perspective, the students recognized the social interaction with their peers as something that was missing from the videos. In this sense, the students also experience their peers as important part of their learning experience.

'It's not exactly the same since you don't have the students, the students are in a way a part of asking questions, wondering about things, I feel it's not exactly the same as in the classroom but it's the same information that comes but you don't get, you don't get the same feelings as when you are home, so.' (Anne)

Yet, when it came to talking about having the videos as lecture, there was a fine line for how much repetition was a positive thing for the students. When students felt that they used time at home to understand the content of the video, to only have it repeated in class then the purpose of having the video lost its meaning. This was especially true when they felt the repetition was the cause of other students not seeing the video and needing the class time to get caught up on the subject matter. This emerged in the following discussion between Anne and Berit in the group interview.

Anne: 'There were quite a few that hadn't seen the videos really. He had to repeat everything…'

Berit: 'Repeat everything, well for those that hadn't seen…'

Anne: 'And then if we were supposed to do tasks here and see it (the video) at home, that went away, it becomes like a regular class again. For those that had seen the videos actually heard very much of the same thing again.'

Berit: 'It became clear that he repeated what was in the videos when people started to ask about things and it became like a regular lecture, it's positive in a way, you get a little repetition from the videos and that's nice, but it's also a bit of a bummer because then you could have had that class because we had understood the whole video, then we didn't need the repetition.'

From these students' responses we see that just enough repetition is a positive activity. And that the classroom conversation should focus on discussion not repetition of the content in the videos. The class discussion was expressed by the students as an important activity for Social Studies, as is shown in the following, sub-theme.

8.2.2 Social Studies as a subject for Flipped Learning

Specifically, for the study, a Social Studies class was chosen to flip, as it differs from much of what the previous research has focused on, the STEM subjects (FLN, 2014). This theme emerged as the students reflected on their class discussion practices and how they experienced the Flipped Classroom when relating the videos to their class discussion.

> *'Social Studies is a huge subject, you discuss a lot in it, so then maybe to use the same method for this type of subject, as there is so extremely much and no one is, well wrong even if it is an interpretation of the theme in a way.' (Ella)*

The students talked about how Social studies requires more discussion, detail and opinions, and can be complicated. As Isak notes with the theme of the videos, *'The cold War is quite a difficult theme, I think, lots of sides and a lot to understand in relation to others, so then it's not so easy as the other things.'* Meaning that the themes may need more class discussion to understand. This is reflected in Charles' description of how he approaches teaching this subject (Section 5.4), especially the importance of the students' reflections. The amount of complexity may influence how the students experience the fine line between discussion and iteration.

In this context the students mentioned Flipped Classroom possibly working better for a math class. Some of the students mentioned having Flipped Classroom previously and meant that it *'worked out really well because there are explanations and examples and tasks and then there are a lot of other themes'*. Here is seems that the students experienced their math flip as more structured, possibly a contrast to the more dialogical expectations for Social Studies.

Yet, Martin meant that math as a flip was more difficult as *'you don't get answers, there are more questions in math and then it's more difficult to teach yourself.'*

The pattern that is emerging here, can be understood by looking back at the FLIP Model (Section 1.4). The 'I' for *Intentional Content*, means that teacher's need to be conscious of which lessons, they flip. The students' experiences vary depending on the content presented when flipped. The type of content being presented was for these students experienced as a positive feature due to the visual aspects of the videos:

> *'If you or someone watches the video, then it's like seeing a film instead of reading the book you get everything, it's more descriptive, it's like a summary, the film, but like in the book you have to describe everything you can't see and hear and like that.' (Lars)*

This may be seen as an advantage videos afford specifically for Social Studies in how they mediate the visual descriptions of the historical event, as opposed to a text description in a book. In Lars' citation, he seems to experience it as a relief to not have to use energy on picturing the event himself.

The theme of *Classroom discussion* introduces elements of boundary crossing. The students seem to start connecting how their experience with the videos at home, have an effect on their experience in the classroom. This became even more evident as the students started talking about how the videos made them feel prepared for class.

8.3 Preparing for class

A second theme that emerged in the interviews was how the students felt the videos prepared them for class. In feeling prepared the students talked about what they felt they themselves and what others knew when they returned to class.

Even though the idea for Flipped Classroom is to see the videos in order to prepare for interactive activities, the students still understood the videos as a source for preparation for class the next day. They still felt they needed to know the specific content to feel prepared for the following class. This was in a way related to having information for the classroom discussion. In feeling prepared the students talked about knowing which points were going to come up in class.

> *'I felt a bit prepared for class, because in them… he talked about what we would need to know afterwards, in the videos. It's not like the jumped over something and then you felt that if you had seen the video and understood them then I felt a bit prepared when it came to class.' (William)*

Feeling prepared seemed to be related to easily understanding the content in the video. This was often attributed to the video being very specific and the teacher being very specific in the video.

> *'I think I used maybe about the same amount of time. But I think I learned a lot more from the videos. At least, come, because, the think with the videos is, it was well everything we needed to know for class. And when you read 10 pages you maybe need only three of them for class. So we to know so much more of what we need then, so I think it's just better to just learn what we really need.' (William)*

8.3.1 Reducing the amount of content

Best practice for design for video lectures is to reduce content to keep the videos short (Bergmann & Sams, 2014). Based on this principle the videos were purposefully kept short, and the teacher had chosen to abstract certain information from the book to keep the video format short. This came up in Observation – Day 2 (7.2.2), when the discussion moved to a topic the students did not remember from the videos. Charles informed them that he kept it out to keep the video short.

Have less content in the videos was experienced as a positive aspect and was related to what the students may have had to read instead of seeing a video. As William shared here:

> *'What I think, I don't know, I think it's like a bit more motivating when, if you have 10 pages you have to read and there is a lot of heavy material like also like and then there are like a lot of things we aren't going to use in class that's the think I liked with having video homework where we just like listened to because then we just got to hear specifically what we need to know for class.' (William)*

When comparing the video lecture to having a reading assignment Isak responded that *'you get a lot more out of these films'...and that was something they were really very positive to.'* Having a positive experience to the reduced content was that '*…in the book there is often even more information and then you have to sort out the most important.'*

In this sense, we can see that the videos stand to mediate the amount of information differently than the book does. In this context, Isak experienced this as a positive aspect of the videos.

The videos in this context can be seen as a tool to aid in scaffolding the information as the purpose is to reduce the degrees of freedom, to fit a specific format. The condensed information could be a reason why students experienced that *'everybody knew the same thing, everyone, everyone had the same knowledge'* (Isak), the next day in class. This may have to do with the points made earlier in Section 8.1.2 – *Watching the video several times*, where the on-screen text was identified as an easy indicator to know what they 'needed to focus on.' *'It was really nice because everyone knew what we were doing.'*

> *'It was really nice because everyone knew what we were doing. Everyone, ya, everyone knew everything and then we could go right into starting to practice, right? (Isak)*

In addition to the on-screen text, having the teacher as the speaker on the film, the students experienced as a positive aspect of experiences preparedness for class.

8.3.2 The teacher as the competent other

This theme arose as the students expressed a trust in Charles' explanations. This theme was true in feeling prepared for class and was also relevant to the last theme in how the students experience the group activities.

The interviews revealed that the students experienced having the teacher doing the explaining on the video as a positive factor. This was attributed to the teacher being *'really specific in the video'* and most of the students *'usually used to Charles explaining.'*

> *'I think it worked out well. It's like, because, as I said, when Charles explains then you like understand, and then it was films, and video clips from when it happened and then it's easier to understand, I think, than just a bunch of text.' (William)*

The students also associate the teacher's explanation of the content to what expectations he has for them for the classroom discussion. This matches with Charles' earlier description for what the purpose of the subject of Social Studies is (Section 5.4).

> *'Charles, he's is very much about what I think, if there is something I haven't read so much about then it's difficult for me to have an opinion about something.' (William)*

In this sense the videos work really well for the students to feel that they understood if they don't always feel they understand when reading.

Having the teacher explaining can also be experienced as a negative thing if the students are frustrated with the homework assignment.

> *'And then when you the evening before the day you are supposed to be finished, then you feel that "I just can't bare this" and then there are so many that choose not to see it (the video) and come to class unprepared.' (Nora)*

This in turn goes back to the students not watching the video, and possibly having to repeat the lesson in class. This was also the case if the teacher was supposed to be in your home:

> *'It's maybe something with when you have been at school and have had lecture all day, you don't really need to take your teacher home for him to have one more lecture for you.' (Berit)*

In feeling prepared for class the students' responses reflected that the source of the information was important for them feeling prepared. The on-screen text which earlier was associated with the important points the teacher writes on the board during regular lectures, and the teacher as the source in the video seem to mean the students could trust the content. Having the teacher on video could in some circumstances have a negative effect too.

8.4 Connecting the videos to the classroom activities

The students received the video lectures as a homework assignment first. Then, for the following class they were meant to come prepared to work in class on activities related to the topics of the videos they had seen. The information in the video lectures was intended to support the students in the activities the following day in class.

8.4.1 Relating the videos and the activities

A pattern that emerged in the interviews was the way the students related the content in the videos to the purpose of the in-class activities.

> *'...what I felt was that, you watch a video at home, but you didn't get to use it at school. We didn't work with it at school. Right away when we get to school we are supposed to have a presentation about a country that we haven't had at all.' (Nora)*

When they were prompted to talk about the activities in class they referred to them in relation to the videos.

> *'The day after…well that was well, the presentation when we didn't' get to work with the videos in a way…' (Nora)*

In this context the students experienced a lack of connection from the information in the videos in supporting the classroom activities.

8.4.2 Creating bridges

Here it seems the video did not manage to create a bridge between Nora's experience at home and the activity she had before her in class. This was a common experience with the rest of the students.

> *'It worked out ok, um that ya, I had the Vietnam Civil War, that didn't have so much to do with the videos we had seen, so for me…it was a new theme to make a presentation about. (Ella).*

That they didn't get to *'work with the videos in a way'* meant that some of the students felt that their *'understanding for the Cold War went away'(Nora)*. Although the students experienced losing some of the understanding for the subject they were able to make the connection on the topics.

> *'I understood why we had those themes, that was okay to understand, but I didn't get any help from the videos when I was supposed to write that assignment.' (Berit)*

The videos were able to assist in boundary crossing when the students were meant to connect the videos seen at home, to the topic's relevance to the in-class activity. Yet, in the citation above, Berit is still concerned with the lack of information the video was able to provide her for the presentation. The interviews revealed that the students experienced the lack of a connection from the video to the activities as frustrating.

> *'I had one minute of it in the videos, I had the fall of the Berlin wall, and the end of the war, and then it was like, so I was like "ok" but there was one minute about it there, and I didn't understand so much about it there, so then I had to try to figure it out.' (Berit)*

To solve the problem, the students felt they had to resort to other sources to find the information. The concept of Boundary crossing tells us that situations of misunderstandings can occur when objects cross borders (Star & Griesemer, 1989). This is shown in this students' description of starting to work on the group project:

> *'It was confusing because I had not heard about most of the themes we got, and I got one of them I hadn't heard of, and then there is a bit of confusion there, and then it's just like go into Wikipedia.' (Martin)*

For some students gaining some knowledge was sufficient in justifying the activity, even if they weren't able to make the connection between the videos and the activities.

> *'But it went fine, I also learned or at least got a bit of knowledge about a few different things, like The Bay of Pigs, Afghanistan, a bit like that really, …and…and…and…The Cuban Missile Crisis and The Korean War and everything.' (Ella)*

The videos' ability to function in crossing boundaries depended on how many students in the class saw the video. In this student's response to having the videos as homework she points out the importance of students actually doing the homework:

> *'It feels like it works really well, if everyone sees the video. If there are just one or two that don't see the video then the whole class gets the brake put on, because then we have to go through the video so that the two can understand it and then we can start working and that takes a few minutes.' (*Berit*)*

If the content of the video needs to be repeated in class, then its purpose of bridging the work done at home to working with the content in class may be lost. This aspect relates back to the them about the *Classroom discussion* (Section 8.2).

The videos working towards Boundary crossing between home and school was lost as the information from the videos was not experienced by the students to carry over to the classroom. This can be the result of a misunderstanding in the purpose of the videos, a key factor in establishing Boundary objects (Star & Griesemer, 1989). Yet the students did not experience this as helpful for their projects. In this case the students did not see the purpose of watching the video at home.

8.5 Working on group projects in class-time

When working with Flipped Classroom, the goal is to create a dynamic, collaborative classroom, in place of where the lecture once was. One way of creating this interactive environment is by having the students work together in groups. For this study, the students were organized into groups with a goal of creating a presentation together. The students were given time in class to create a presentation on a topic related to the Cold War. When the students spoke about their experience with the group activity, a common theme that arose was how much time they had to create the presentation.

8.5.1 The time factor

The time factor for working in groups was mentioned all the way through. As Isak pointed out *'It always takes a bit of time to get going but when you are in a group…'*. Taking time to get going also means that the students feel the limited time they have does not give them enough time to prepare for a proper presentation.

> *'I'm not such a fan having such a short amount of time to make a presentation. I think you should get a bit more time to be able to cram and stuff.' (William).*

The students generally reported that the limited amount of time, meant that they did not feel that they had enough time to prepare before they had to present. This meant not '*really*

know[ing] what I should say and such when we got up.' Students reported that not knowing what to say in their presentations '*was a bit stressful'* and made it a bit of a negative experience. The students said it would be '*better to get a bit more time to be able to write a presentation properly and to cram properly.'*

8.5.2 Learning from peers

Not feeling prepared and knowing what they are going to say in their presentations, may also have an effect on how the other students perceive the validity of the presentations.

> *'But I also like when we, but I don't learn so much when others have presentations about it, well I did get a bit of knowledge about it but if [the teacher] explains, then I feel that it's easier to ask questions that you don't really, you are a bit afraid to ask questions they can't really answer right?' (Ella)*

The students found it *'a bit difficult to follow along with the other students that are giving a presentation'* which they meant was *'difficult'* and *'stressful'*. This may have to do with them experiencing the presentations as unorganized.

> *'And then we have to take notes along the way, and then we have to say "wait, we just need to finish writing", and then it's a little messy really.' (Anne)*

This disorganization they feel may be a result of the limited time the students had, and the feeling that they had to rush to create a presentation. Again, the students are concerned with where they are going to get their content.

> *'I was in a group with two others that also hadn't managed to find so much information, so then it was just to read really quickly in the book, skim the book to make a good presentation in 20 minutes.' (Berit)*

Another factor with student presentations is that students do not experience their peers as competent others. *'I didn't really learn so much from the others but I did get more like a little lite knowledge about it.' (Ella)*. For the same reason that the students liked having the teacher in the videos, is why they do not prefer to learn from the others, they like it when the teacher explains things to them.

9 Discussion of my findings

The starting point for this project was to get a better understanding of Flipped Learning. To achieve this, I looked at student accounts of experiencing a Flipped Classroom. Through a thematic analysis of the students' experience, I set out to answer the following research questions:

How do students experience Flipped Classroom?

and

How do students' experiences of a Flipped Classroom lead to a better understanding of Flipped Learning?

Taking into consideration the limited amount of research on Flipped Learning, especially in the humanities subjects, and the desire to contribute to building an awareness for this learning model, I have with this project addressed the gap in research by defining Flipped Learning through the students' experience in a Social Studies class. In this section I will discuss the core findings of the thematic analysis. I have organized this discussion to first present some limitations that may have influenced the students' experience. These limitations also revealed some key findings in line with previous research. Findings are also structured to review what the students' experiences have been in light of theory and previous research. Then I discuss what those experiences can contribute to a better understanding of Flipped Learning, and practical implications of those findings.

As mentioned in the introduction, Flipped Learning is about changing a mindset for how and when students are prepared to learn (Strohmyer, 2016). What I have found in this study is that the students are open to trying new learning methods but they need to understand the purpose of the learning activity. This is consistent with previous research showing that there needs to be an understanding of the key elements of the Flipped Classroom to make it successful (O'Flaherty & Phillips, 2015).

9.1 Influential factors of experience

Some key issues I would like to address before beginning the discussion are some factors that may have contributed to these students' experiences. Both Charles and the students reported this class having very little homework. If there are any assignments there is some reading, or often a documentary of some sort. In this sense, flipping the class would be adding a homework element the students do not currently have. This could be seen as a negative thing. Earlier studies have also shown that the amount and type of homework a class is used to can influence their perception of a Flipped Classroom (Johnson & Renner, 2012). As Anne shared having homework is something they are not used to for this class. This may have influenced their experience if they feel the videos only add more work. Though Nora pointed out, if the students had had a choice they would choose a video over traditional homework.

This also attributes to the tight time factor. The interviews revealed that many students relate to having tight time schedules. This had to do with being in their final year of middle school, they have many projects, and the stress of oncoming exams, and extracurricular activities. Respect for their tight schedules was addressed in the interviews to not making the interviews too long, none-the-less, having this project may have influenced their experience when related to feeling stressed with lots of on-going projects.

Some of the students mentioned in the interviews that they have experienced Flipped Classroom before. The students reported having had a Flipped Classroom for math, where they were asked to watch videos first, and then do assignments in class. The students reported the videos as a bit boring. As this phenomenological case study focused solely on this class experiencing this Flipped Classroom (Moran, 2001), I chose not to have too much focus on their experience then. I chose to keep their previous experience in relation to this case.

Now I will discuss the core findings that emerged from the interviews.

9.2 Elements of design

The students' experience with 'working with the videos' showed that the videos are able to work as a learning tool. I found that certain design features of the videos can function as a type of scaffolding. In line with key findings in previous research (Murray, et al., 2015), the short, concise format of the videos meant that students experienced the videos as interesting

and fun. In scaffolding students, tutors are meant to keep the interest of the student up, and in a way this can be done is by reducing the degrees of freedom (Wood, et al., 1978). In this context, the videos have been able to work as a tool to aid the teachers in this manner. This also meant that the students experienced the videos providing them with the exact information they needed. The students' responses to how they perceived the on-screen text as what the teacher writes on the board shows the students' experience a bridge between their two social worlds. In working with the videos the students began making connections to their class lectures and in this sense boundary crossing was apparent, and therefore; the potential for learning (Akkerman & Bakker, 2011). The students also responded positively to Charles being the person doing the explaining in the videos. This is supported by earlier research, as the teacher is still recognized as the competent owner of knowledge (Strohmyer, 2016, Yarbro, 2014).

What does this mean for Flipped Learning? As mentioned, Flipped Learning requires a change in how students view where and how learning can happen (Bishop & Verleger, 2013, Krumsvik & Jones, 2016, Strohmyer, 2016). In this case, the main finding here through the concept of boundary crossing, is that the students are able to make connections from the classroom lecture to the video and recognize it as a tool for instruction. This bridge may mean that the videos carry the potential for being recognized by the students as a method for instruction instead of their teacher in the classroom. This supports the need for a change of mindset to understand Flipped Learning (Strohmyer, (2016). These findings could be looked into further when it comes to the design elements of the videos. As the students often mentioned the on-screen text, and working with the questions in the video, these could be indicators for features to develop further in future video lectures.

9.3 Crossing into the classroom dialogue

When it comes to having a Flipped Classroom, to a certain degree, the students are aware of what they have done at home can be relevant for them the next day when it comes to a classroom dialogue. When the students began addressing the topic of having a classroom discussion, it became clear that this is an activity of their classroom experience they do not want to sacrifice for video lectures. The students in Charles' class stress the importance of having a classroom discussion. This is supported by previous studies showing students' preference for having in-class lecture when there is a classroom dialogue (Bishop & Verleger,

2013). This was especially true when it came to Social Studies for the students in this study. Being able to address questions in class following video lecture assignments, was experienced as positive with having a Flipped Classroom, as it was the start of a classroom discussion. This was consistent with the findings in the study by Strohmyer, (2016) that students prefer to have time in class to answer questions. The students indicate their preference for having the teacher answer gaps in their understandings.

The students still recognize Charles as the competent other. Referring back to the FLIP model (Section 1.4), this is emphasized as an important factor with Flipped Learning, that the teachers are still needed in the Flipped Classroom. Here the teacher is present to facilitate a dialogue. Anne mentioned this was something she liked as it was an opportunity for new themes to emerge on the topic. The classroom dialogue and the presence of the teacher to guide learning is supported strongly in the sociocultural learning theory as a source for learning, and as we see here something the students value.

The classroom dialogue is also mentioned as an important part of learning Social Studies. Although, the students shared varied experiences with a Flipped Classroom for this subject. Some, like Berit, meant that Flipped Classroom works better for math subjects. This may be why more research is conducted on subjects like math (Sohrabi & Iraj, 2016, FLN, 2014). Yet, as Martin explained, he preferred the videos for Social Studies, as '*there are more questions in math and then it's more difficult to teach yourself.'* Also, when it comes to having videos for Social Studies, the audio and visual features are considered a positive aspect (Gough, et al., 2016).

When addressing these experiences towards a better understanding for Flipped Learning, we can see the importance of knowing the intent of the content before flipping (Ainsworth, 2006, Murray, et al., 2015). This can be seen in knowing how much to prepare for discussion or iteration in class, or how a subject is best understood by the students. This is supported by The Flipped Learning Networks' meaning that although research shows increasing advantages and usage of Flipped Classroom in several subjects, educators should reflect on their intentions with the lesson and evaluate if it fits with this model (Yarbro, 2014). We also see that boundary crossing occurs as the students are aware that their experience and interaction with the video translates to an experience later in the classroom. This again shows potential for the students' ability to grasp the purpose of Flipped Learning. If Charles would attempt to

flip his class again, this could help with creating the video to keep in mind how the video content translates to a classroom dialogue.

9.4 Preparation

In sharing their experience with watching the videos, the short and concise format of the videos mean that the students reported easily retaining the information in the video. This meant that they felt secure in knowing what they needed to participate and answer questions in class. Consistent with previous research, the students meant that they easily got the knowledge they needed from the films (Murray, et al., 2015). This can be seen again reflected in the concept of scaffolding, in supporting the video as a possible teaching resource for the students.

A key finding in this theme in further understanding Flipped Learning, is building on an earlier finding that these students experienced the videos as an information source that has relevance to their classroom experience. Here, I see indications that the students are able to grasp the ground basis for participating in a Flipped Classroom. If the students are able to understand the purpose of the videos as supporting them in being prepared to participate in class, then it is a start to establishing a Flipped Learning mindset. In practical terms this may mean that if teachers choose specific activities to be flipped, the students' expectations for their role in being an active learner are already established. They are already prepared to bridge their home experience with what will happen in their class environment. Here there resides potential for learning as we established earlier in the concept of boundary crossing. (Section 4.6)

9.5 The intention of the Flipped Classroom

The purpose of Flipped Learning is to have students take the lecture home in order to have the class time to work on activities together in class (Heimly & Bertheussen, 2016; Bishop & Verleger, 2013; Lage, Platt, Treglia, 2000; Warter-Perez & Dong, 2012). It emerged in this study that the students were not experiencing a connection between the information in the video with the purpose of the classroom activity. This is one of the main findings for this study. Flipped Learning is understood from the definitions that frame this study (Section 1.6),

a Flipped Classroom needs to make the connection between the videos and the in-class activities (Bishop & Verleger, 2013, Yarbro, 2014). It is the combination of the two that set the ground work for a successful Flipped Learning experience.

What I have found in interviewing the students and collecting their stories on this experience, they did not establish a connection between the videos and the group presentations. In the design of the videos, the intention was for the videos to act as an introduction to the Cold War, and the second video to demonstrate, or model, how to present a follow-up topic to this video's theme (Section 6.1). Yet, the crossing of boundaries in connecting these two activities did not seem to occur. This is in contrast to the previous study done by Heimly & Bertheussen, (2016) which found students having a positive experience connecting the videos to the activities. Although, this latter study was done at the university level and the students may have a different understanding of responsibility for their own learning.

What I have found here, is that the students often compared watching the videos as being in their own lecture, even comparing the on-screen text to how the teacher would write on the board. Yet, when they start working on their group project they were expecting the videos to cover the information for their topic. Going back to mediating activity, the videos were not seen as a mediating tool for the activity of preparing the students for the in-class activities. In this context the videos lost their meaning in the Flipped Classroom. As Krumsvik & Jones (2016) also found, mediating artifacts do not have any meaning outside of the context that gives them meaning (Krumsvik & Jones, 2016, Wertsch, 1991). Based on these findings, further research could look at how the students would experience this the other way, if they would have had to make a presentation outside of the classroom, would they have expected their lecture notes to cover the information they needed for the presentation?

From my observations – day 1 & 2, Charles expressed his intentions with the purpose of the videos. Yet, this did not come across for the students. What this finding can tell us is that when structuring a Flipped Classroom in the future, some expectation management and clarity for what the purpose of the activity is should be established. As we have seen previously, the students have begun to cross boarders of their social worlds related to the Flipped Classroom. In previous studies, it is shown that misunderstandings by both teachers and students of the key elements of the Flipped Classroom can hinder its success (O'Flaherty & Phillips, 2015). Clear implicit indications for how the videos are meant to mediate their preparation for the in-class activities may be a way to strengthen these bridges of boundary crossing.

10 Conclusion

What I have found in this study is that there is a lot of potential for the Flipped Classroom. Even if only as an alternative learning strategy to approaching different lessons. Many of the findings in this study coincide with previous research. What this study has seen is how the bridging of the of two social worlds, home and school, of the participating students has learning potential. This is despite the students experiencing a disconnect when it came to connecting the videos and the in-class activities. Even though the students experience a connection between their home and school experience in a Flipped Classroom, conscious design of how to connect the video lectures and the in-class activities needs to be taken into consideration.

The Flipped Learning story has only just begun. Flipped Learning has the potential to engage learners in a more interactive technology-supported student-centered learning environment. Or, even simply as a teaching tool for teachers to blend learning modes. In theory, Flipped Learning has the possibility to support learners in building skills in collaboration, and utilizing digital tools as resources, yet the research has not come that far. Therefore; in practice there is room for growth. A factor to keep an eye on when it comes to flipped classes is how further advancements in technology influence Flipped Learning, like experimenting with other forms for technology, such as gaming or virtual reality instead of videos. But first, more research needs to be conducted to gain more information about the implications of Flipped Learning for learning outcomes.

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Attachment 1

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Vår dato: 07.02.2017 Vår ref: 51909 / 3 / AMS Deres dato: Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 04.01.2017. Meldingen gjelder prosjektet:

51909	*Flipped Learning: Video lectures for social studies*
Behandlingsansvarlig	*Universitetet i Oslo, ved institusjonens øverste leder*
Daglig ansvarlig	*Hans Christian Arnseth*
Student	*Haley Threlkeld*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, http://www.nsd.uib.no/personvern/meldeplikt/skjema.html. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, http://pvo.nsd.no/prosjekt.

Personvernombudet vil ved prosjektets avslutning, 01.06.2017, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Kjersti Haugstvedt

Anne-Mette Somby

Kontaktperson: Anne-Mette Somby tlf: 55 58 24 10
Vedlegg: Prosjektvurdering

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Attachment 2

_____

Flipped learning: Interview guide for semi-structured interview
Haley Threlkeld – Spring 2017

Research questions	*How do students experience the Flipped Classroom?*
1. Starter questions	What does your typical homework assignment look like? What homework did you have last week that wasn't flipped classroom? How does that compare to what you normally have as homework?
2. Home experience	Tell me more about where you were, the room you were in. • What type of *device* did you use? • When did you watch the video lectures (after class, in the evening, right before class)? • Where did you watch the video lectures (school, home, with friends)? • What did you do while watching them? • How many times did you view them? • Did you watch the videos with anyone? Did you research anything more? How does this compare to when you typically do your home assignments? How would you compare this assignment to regular take home assignments?
3. Classroom experience	Okay, so after the weekend you had Social Studies and group work. Tell me your experience of that class. Describe the activities that happened in the classroom the following day, relating to this topic. (Relevant, difficult, pointless?) How did it compare to a typical day in this class? How did the group work go? Recall specific aspects.
4. Their opinion	Tell me about your experience with watching the video lectures as homework. WHY? Describe how you think the video lectures were/were not beneficial. Tell me what you were thinking then.

5. Last words	Is there anything you would like to add to tell your experience with the flipped learning activity?
Specific events	• Marshal Help - this was brought up, that hadn't been a part of the films • The videos are too long • Needed more bullet points • Couldn't find the link

Attachment 3

University of Oslo

Consent to participate in research project

'Flipped Learning: Video lectures for social studies'

January 4, 2017

Background and purpose

The study is for a master's thesis and will look at how the use of video lectures as introduction to subject matter, function as boundary objects for students in classroom activities. The students will be assigned video lectures introducing themes and terms relevant to the current academic agenda to be viewed prior to class. The study will focus on the students' interaction and response in the classroom while a teacher is present to support topic-related discussions and writing activities. The assignments are part of the regular semester curriculum. The classroom and teacher were chosen on a voluntary basis, with an interest in this method for teaching.

The study will be guided by the following research questions:

- *How do students experience a flipped classroom approach to learning in the social sciences?*
- *In what way do these students relate to the digital resources for this approach in different contexts?*

To explore these themes further, interviews with students in a tenth-grade social studies course will be conducted and observations will be done by video recording.

What does participation in the study imply?

Participation in this study will be part of the regularly scheduled classroom agenda. Activities are part of the regular curriculum assigned by the teacher. Observations and interviews in relation to the study do not affect any grading or classroom participation points. Students will be assigned video lectures as homework. The classroom time following the assignments will involve guided class discussions by the teacher. Activities will also be introduced that are relevant to the viewed information. The classroom activities will be video recorded; this is purely for the researcher's observation and will not be shared further to other parties. The videos will be used to identify patterns in classroom behavior to support follow-up interviews. Interviews with selected students will be conducted following the two weeks flipped learning agenda. Interviews are completely voluntary and will be done individually, or in a group, and will be audio recorded. Interviews will focus on the students' telling of their experience

with participating in this type of flipped learning activity. Data will not be used for any other purposes than this master's thesis.

Interviews with students will be semi-structured and questions will depend on the students' responses. The intention is to hear the students' opinion, story and point of view. If parents are interested in viewing interview themes or questions prior to the interview they can contact Haley Threlkeld via email: hdthrelkeld@gmail.com

What will happen to the information about you?

All personal data will be treated confidentially. Only the researcher will have access to the data and data will only be viewed by the involved researcher, and supervisors. All data will be stored on a password protected hard drive. All names will be anonymous in publication. Recordings will only be used for the researcher of this master's thesis purpose for evaluation and study.

The project begins January 4, 2017 will be completed by June 1, 2017. All data from this project will be stored until completion of the master's thesis with receiving of a final grade. All information will be anonymous. All data will be deleted following the completion of the thesis.

Voluntary participation

It is voluntary to participate in the project, and you can at any time choose to withdraw your consent

without stating a reason. If you decide to withdraw, all your personal data will be made anonymous.

If you have questions regarding the study please contact, Haley Threlkeld, (40618915 hdthrelkeld@gmail.com). Supervisor, Hans Christian Arnseth (92245443 h.c.arnseth@iped.uio.no) and Rolf Steier (22840706 rolf.steier@iped.uio.no)

The study is registered with Personvernombudet for forskning, NSD - Norsk senter for forskningsdata AS.

Consent for participation for the study

☐ I have read and understand the above information about the study 'Flipped learning: video lectures for social studies' and am willing to participate.

☐ I understand that observations, video recordings and interviews will be done during the course of this study.

☐ I agree to be video recorded in a classroom setting for the purpose of research observation

☐ I am willing to participate in a voluntary interview in regards to the study.

(Print name, Signature of participant, date)