

The Flipped Classroom and Student Learning at Compulsory School in Sweden- A Longitudinal, Qualitative Study

Mikael Segolsson* Åsa Hirsh Johan Bäcklund

School of Education and Communication, Jönköping University, Gjuterigatan 5, 551 11 Jönköping, Sweden

* E-mail of the corresponding author: mikael.segolsson@ju.se

Abstract

This article presents the results of a longitudinal study at an elementary school where teachers and students used the Flipped Classroom teaching methodology. Longitudinal studies of how the Flipped Classroom can support student learning are of importance because this methodology has become quite popular of late. Notwithstanding this, there is currently lack of broad and deep knowledge of its effects at the elementary school level. The research object is therefore important to study and longitudinal studies can provide us with important results, which can be used in teaching practices. Data was continually collected via observations and interviews with teachers and students over a period of three terms. The theoretical framework used in the study is 'life-world phenomenology', which entails that the point of departure for the study is the students and teachers' living experiences of how the Flipped Classroom *shows itself* in the context of their school-life. A central issue with respect to the data collection was that the researchers were as unobtrusive as possible during their observations, so as to not affect normal school activities. This was done so as to understand the abilities that the students developed and how their way of working at school changed. The results show that the Flipped Classroom had a positive influence on the majority of students since they developed a sense of agency in their learning which was demonstrated by their taking the initiative as they progressed with their learning. Furthermore, they developed problem-solving skills and came to believe in their own potential for success. However, this teaching methodology did not suit every student, because it entailed change that was difficult for some of them to deal with. This was the case with students who needed a traditional structure to their teaching and who were more comfortable when the teacher was the central figure in the teaching process.

Keywords: Flipped Classroom, Life-world Phenomenology, Abilities, Compulsory school, Longitudinal, qualitative research

1. Introduction

The idea of the Flipped Classroom as an instructional strategy was first introduced in the late 1980s by Wesley Baker at Cedarville University. Baker's idea was to use a digital platform to make instructional materials available to students outside of their scheduled classroom instruction (Johnson & Renner 2012). At the time, computer technology was not sufficiently developed, and Baker's ideas could not fully be implemented. However, with the development of digital technology, the World Wide Web, and especially the launch of YouTube in 2005, Baker's ideas have subsequently been realized and further developed into what is today termed the *Flipped Classroom*. Jon Bergman and Aaron Sams, two other pioneers of the Flipped Classroom movement, have contributed significantly to the conceptualization and pedagogical development of the Flipped Classroom by presenting various ways of using digital tools to create student-centred teaching situations (Bergman & Sams 2012). Proponents of the Flipped Classroom as an instructional strategy argue that it gives students multiple opportunities to process instructional content; on the one hand through the flip itself, and on the other, through the content being addressed in the classroom afterwards. Moreover, there are opportunities for students to take part of several different flips that deal with the same content, at their own pace, and multiple times, if needed (Mok 2014).

In this study, the term, *Flipped Classroom*, is used to describe the pedagogical concept of classroom time primarily being used for quality, student-centred work instead of teacher-led briefings. The flip entails that students have partly-developed knowledge and understanding of the subject content *before* they come to class, usually developed at home through, for instance, short educational films where the subject matter is presented, but often also through listening to a podcast, following a blog, or visiting a company, etc. The content can either be downloaded from the school's course materials or consist of real-world scenarios (Clark 2013). The intention behind the flip is that the time teachers and students spend together is used to *process* content rather than having traditional lectures. Alsowat (2016: 109) describes the principle and purpose of Flipped Classroom as follows:

[...] teaching calls on learners to become active classroom participants by placing the passivity of listening to a lecture and to devote face-to-face classroom valuable time for peer collaboration, inquiry, and project-based learning. [...] As a reaction to teacher-centred learning, the Flipped Classroom gives instructors valuable tools in changing these practices by freeing class time to better assess student learning and using class valuable time to help students apply the knowledge they gained through online lectures, notes, etc.

Since the Flipped Classroom, as an instructional strategy, has spread rapidly (Johnson & Renner 2012), even in the elementary school context, there is urgent need to broaden, as well as deepen, our knowledge of how this method contributes to supporting student learning. Not least important in this context are longitudinal studies where analysis is based on data collected over time. Such studies can make a valuable contribution to our understanding of the method, compared to interventions carried out during individual courses or sessions. Longitudinal studies reduce the risk of bias that might be present in shorter interventions. This is the case because since short-term outcomes may be positive simply because the intervention was merely an *occasional* positive change in regular classroom activity.

1.1 Aim of the Study

Based on classroom observations and interviews with students and teachers, this study aims to present knowledge of how students' learning strategies change when the *Flipped Classroom* is used as instructional strategy. Specific attention is given to how students' classroom work changes and to the abilities that they develop.

2. Review of Literature

Since most existing research on the effects of the Flipped Classroom is conducted within the field of higher education (eg: Bates & Galloway 2012; Tawfik & Lilly 2015; Mattis 2015; Wang et.al, 2016), we lack knowledge of how the strategy works in the elementary school context. The presentation that follows of previous research in this area therefore focuses on studies of relevance for the current study's purpose and studied population. Studies carried out in the context of higher education with results that are assumed not specifically limited to higher education only are thus included in the discussion below.

Solstuen (2014) examines the transformation from 'traditional' to flipped instruction in the subject, Music, in elementary school, and found that the introduction of the Flipped Classroom does not automatically lead to higher quality instruction. He further argues that it is important not to change from one form of instructional strategy to another, all at once. The benefits of flipped instruction, however, weigh heavier than the disadvantages, Solstuen argues, which is a reason why teachers, with some caution, should add this strategy to their and their students' classroom repertoire. Similar results are highlighted in Bishop and Verleger's (2013) research review, where the results of 24 different studies are presented. For the current study, the study by Day and Foley (2006), which is also a longitudinal study (one semester), makes an important contribution. They found that using the Flipped Classroom methodology led to positive results, but they also argue that the results are difficult to generalize into other areas as it could vary depending on the subject, school level etc.

By comparing "traditional, teacher-centred" instruction to "learner-centred", flipped instruction, Strayer (2007) noted that both methods have advantages and disadvantages, when weighed against each other. The greatest benefits could, however, be detected in the Flipped Classroom. The study was based on qualitative-, as well as quantitative data, and the results showed that cooperation between students, and between students and teachers increased in the Flipped Classroom. The variation that the method entails, often highlighted as positive in terms of creating opportunities for individualised teaching, was, however, not only positive. Too much variety and a multitude of different types of activities led to confusion in some students. In Enfield's (2013) as well as McLean, Attardi, Faden & Goldszmidt's (2016) studies, students experienced that they participated more in classroom activities when they had been introduced to the content in advance. It was also observed that they interacted with each other to a greater extent in the Flipped Classroom. Van Vliet, Winnips, and Brouwer (2015) point to similar effects; collaborative learning among students increased as an effect of the Flipped Classroom. The notions of 'collaboration' and 'commitment among students' was also examined by Kjellin and Birkenkrahe (2015) in a study conducted at the University of Stockholm and the Berlin School of Economics. The authors conclude that both engagement and interaction between students increased as an effect of flipping the classroom.

In a phenomenological study, Brown (2012) examined college teachers' experiences of teaching in a Flipped Classroom. Data were collected through interviews and examination of teaching materials used in the classroom. Brown concluded that learning, as well as flexibility, increased among both students and teachers. Initially, however, there was resistance among the students against the new approach, and teachers reported that it was time-consuming to develop and produce teaching materials for the flips. Enfield (2013), too, points out that it is time-consuming to build a video library or to archive relevant materials that someone else has created. His results also show that the students in the Flipped Classroom experienced an increased workload, largely because they had to devote a lot of time to watching videos. However, he also showed that the Flipped Classroom strategy contributed to increased student activity and learner agency. These results are also confirmed in a study by Avdic and Åkerblom (2015).

Alsowat (2016) investigated the effect of the Flipped Classroom methodology on student involvement in a second language learning context, and concluded that flipping the classroom is one – but not the only – way of increasing student engagement. He argues that the method changes the role of the teacher from instructor to

role more akin to that of a supervisor. In a similar vein, Jamaludin and Osman (2014) point out that Flipped Teaching reinforces the commitment of students and increases active learning. Their study is based on Reeve's (2013) report on four aspects of student involvement: behavioural engagement, emotional engagement, cognitive engagement, and activity engagement. The conclusion is that the Flipped Classroom methodology helped teachers make their lessons more engaging and learner-centred, and, in turn, encouraged active learning, both in and outside the classroom.

In the light of the impact that the Flipped Classroom has had in recent years, the aforementioned study by Enfield (2013) is critical to noting the fact that much research is based on teachers' assessment of themselves as successful implementers of Flipped Classrooms. Enfield's own study is a case study, however, involving two classes at California State University Northridge (CSUN), which was aimed at investigating the effects of the Flipped Classroom from both a teacher- and a student perspective. The study's results demonstrate advantages, as well as disadvantages, with the Flipped Classroom. Some of the benefits that are mentioned in the study are that students felt that they learned the content better and that they were more efficient and active in their own learning. The constant availability of recorded educational material was also highlighted as an advantage. Enfield, moreover, concludes that most of the students' self-efficacy with respect to taking on new and unknown material increased. Disadvantages include a low tolerance on behalf of the students for errors in the recorded materials. Mistakes or interruptions that might be accepted during lectures were not tolerated to the same extent in the recorded materials.

McLean, Attardi, Faden, & Goldszmidt (2016) studied the relation between the Flipped Classroom and in-depth learning, and argue that the students themselves thought they had become more responsible, understood the content of their studies better, and had developed strategies for deep learning thanks to the flip. Furthermore, the authors argue that the students put more time into their studies when the Flipped Classroom methodology was used, when compared to traditional teaching methods.

Atteberry (2013) investigated the effectiveness of the Flipped Classroom by studying instruction provided by four teachers at Harvey Mudd College in Claremont, California. In the study, each teacher taught two parallel sections of the same course; one flipped and one traditional. Atteberry tested the effects of the different teaching methods by looking at the students' skills in using their knowledge in a problem-solving situation, their attitude to their own learning, and whether they could show what they had learned in a test situation. No significant differences were found. Van Vliet, Winnips, and Brouwer's (2015) study focused the impact of the Flipped Classroom on the motivation and learning capabilities of individual students, and their results showed that the Flipped Classroom contributed to improved meta-cognition and collaborative learning. As with Atteberry's study, the results showed no clear benefits when compared to traditional teaching, if the Flipped Classroom methodology is used only occasionally. Continuity in the use of the Flipped Classroom thus seems to be required. Johnson and Renner (2012) studied the effects of the Flipped Classroom by comparing two groups of student and their performance; one group was taught in a teacher-centred (traditional) classroom and the other in a student-centred (flipped) classroom. There were no significant differences in student performance between the groups. The authors claim that the introduction of the Flipped Classroom would have required more systematic strategies. More research in this area is required, they argue; a request which is common to most of the studies mentioned in this review. Zhi Chen (2014) is yet another researcher who demonstrated increased activity and somewhat deeper understanding with respect to the students in his study, but he, too, argues that more studies, on different levels and with different methodological approaches, are needed in order to increase our knowledge about the effectiveness of the Flipped Classroom strategy.

3. Theory and Method

The current study is qualitative and has its epistemological basis in 'life-world phenomenology'. It is an 'experience philosophy' that has developed since the early 1900s, mainly through work done by Husserl (1900/2001), Heidegger (1927/2008), Merleau-Ponty (1945/2006), Schutz (1967), and van Manen (1990). Central to life-world research is that our (human) experience is grounded in our own lived situations or those conveyed to us by others. These give us access to the world, and, through our experience, we learn to understand and act in everyday life (Bengtsson, 1998; 2005). Schutz (1967) characterized the everyday life-world, such as is present at school, as a practical and social world – a reality that is shared with others and that is available to us through our experiences. "[...] And it consists not only of a person's own experiences in the world, but also of experience inherited from parents and teachers" (Bengtsson, 2005: 28). Epistemologically, this means that knowledge formation in life-world phenomenological research is based on the participants' practical- and social experiences in the everyday life-world, in relation to the research object. Furthermore, it means that students and teachers collectively shape instructional practice at school, socially and practically, but it is perceived individually, based on each individual's experience. Specifically, this entails that two or more students can learn different things from the same object, such as a text, or a flip in the form of a film, because the object shows itself in different ways, depending on how each student experiences the object.

In order to understand the teachers and students' experiences of the Flipped Classroom strategy, the current study was carried out longitudinally, where we observed classroom activity over an extended period of time, in order to understand it on its own terms, while gathering data. Our intention was to fit in with the teachers and students' everyday school life with as little disruption as possible. The conditions of the instructional practice, instead of a predetermined framework or observation schedule, shaped both data collection and that which was discovered. Taking a life-world approach means that there is no *a priori* methodological framework that can be applied generally, but, instead, each research project must adapt its data collection and analysis based on the purpose and character of the project:

[...] Appropriate methods are developed based on the area to be investigated [...] As a life-world approach therefore cannot rely on the correct method, every researcher must carefully consider and report which method or methods are used in a project (Bengtsson, 2005: 33).

Qualitative research which investigates social practices aims to understand the context in which interpretations between part and whole alternately represent the understanding of human behaviour in different situations. "A sentence, an action, a concept – can only be understood through the big picture – a text, a social process or context" (Aspers, 2011: 25). Such research therefore requires clear adherence to the activities in which the study is conducted, so as to be able to choose the appropriate methods for data collection, analysis, and presentation of results. In the current study, a non-disruptive approach with respect to both the teachers and the students was important because we were not known to the students before the project started and we were not a natural part of either the teachers or students' everyday school practice. Merleau-Ponty (1945/2006) describes phenomenological research as a way of thinking and relating to the object of study: "phenomenology can be practiced and identified as a manner or style of thinking, that it existed as a movement before arriving at complete awareness" (p. viii). This way of thinking about the object of study and the compliance with everyday school practices that comes with it were taken into careful consideration, in order to give as fair a description as possible of the effect that the Flipped Classroom had on the students' development of their knowledge and abilities.

In a teaching situation, learning takes place when content shows itself to a student as new knowledge which is qualitatively different from previous knowledge. From a life-world phenomenological perspective, this process is seen as the interweaving of the lived life and the context that constitute the conditions for learning:

[...] an interweaving of life and world. It means that learning and how learning can be facilitated in the classroom are described from a perspective where students, teachers, time and space interact and are interdependent (Lilja, 2015: 41).

With reference to the quote above, it is not possible to see learning as something purely cognitive, or objectively independent of time and place. Students and teachers are lived individuals in various contexts, and school is one of them.

3.1 Data collection

In this study, 22 students and 3 teachers were observed over a period of 18 months, from when the students began Year 6, in September, 2104. The students had no previous experience of the Flipped Classroom. To facilitate the technical aspects of the Flipped Classroom, each student was issued with a personal computer from the school, according to the one-to-one principle (Penuel, 2006). The three teachers, on the other hand, had extensive experience of working with flipped classrooms. One teacher had 6 years of experience with this methodology, and the others had 1-2 years of experience. Flipped classrooms were used in the following school subjects: Math, English, Home Economics, Biology, Chemistry, Techics, Physics, and Crafts.

Ethical considerations were adhered to in all respects. Permission was granted by all of the students' guardians who allowed the students to participate in the research study. The teachers and the students who were part of the study were all informed about the aims of the study, that all participation was voluntary, and that all the data that was to be collected would be kept confidential (Swedish Research Council, 2011). All of the 22 students agreed to be observed, and 14 of them agreed to be interviewed. In total, 11 observation sessions, 42 student interviews, and 10 teacher interviews were conducted.

The observations were 'open participatory observations' (van Manen, 1990; Bjørndal, 2005), which entailed that there was no pre-determined observation scheme that was followed, where certain fixed aspects were to be observed during the teaching sessions. The purpose of this approach was to be as unobtrusive as possible and to be as open as possible so as to understand how the teaching method functioned in the classroom. Field notes and summary descriptions that were made after the observation sessions documented that which took place during the teaching sessions. In addition to forming part of the data which was used in the analysis stage of the study, the observations also laid the foundation for important points of departure during the interviews. Discoveries that were made during the observations were used as themes in the interviews.

The interviews were individual, semi-structured interviews (Kvale, 1997; Aspers, 2011), where the point of departure consisted of thematic questions asked by the interviewer. During the interviews, the purpose

of the study was the focus of attention, whilst the themes that informed the interview questions were used to explore things that were observed in the classroom. Other interview questions were clearly directed at exploring the purpose of the study. The alternation between clearly directed interview questions (according to the purpose of the study) and questions which were informed by the classroom observations allowed us to become quite intimate with the teachers and students' everyday work at the school. The interviews could also be characterised as being similar to natural conversations. Aspers (2011: 144) describes such interview techniques as:

[...] to avail oneself of the logic of conversation. The type of conversations that we engage in, in our everyday life, that is foundational to these interviews, entails that the interview, to a large part, is about the researcher being herself, whilst using her everyday knowledge, instead of entering into the conversation as a researcher. To be able to follow the logic of the situation is a fundamental instinct which includes the researcher being present as a person in the situation, instead of the researcher erasing herself from the situation, or becoming a sort of neutral 'robot', which, 'in the best of worlds' does not influence the situation in any way. (Aspers, 2011: 144).

Following the logic of the situation and being a person *in* the situation entailed for the researchers that the analysis of the data, at a general level, took place continuously. This was done so that we could understand how the teaching changed, and thereby, we could follow up on this in the interviews. The deeper levels in the analysis took place when it was possible to see the whole situation, that is to say, when all of the data had been collected.

3.2 Analysis

The analysis was focused on coming to an understanding and describing how the Flipped Classroom appeared to the students and teachers in a way that was as close to the actual events that took place during the teaching practice as possible. In every instance of data analysis in a phenomenological study, hermeneutic interpretations were made (Palmer, 1969) of what was said during the interviews or what was seen during the observation sessions in the classrooms. The process of hermeneutic interpretation is always present in life-world phenomenological analyses, where an understanding of part-whole and whole-part relationships is developed (van Manen 1990; 2007).

When all of the data was collected, it was divided into two levels for analysis. The first level was an analysis of the data that had been collected via observations and of the field notes where we recorded what took place during the lessons and how the students performed their work. The second level consisted of the transcriptions of the interviews, and dealt with the teachers and students' descriptions of the Flipped Classroom. The combination of this data resulted in a rich data set and the different levels of analysis entailed that the qualitative analysis took place both on the manifest- and the latent levels (Hsieh & Shannon, 2005), where observations were able to enrich our understanding of the content of the interviews, and *vice versa*. The results of the study, however, emerge from a latent understanding of the data set.

The phenomenological method comprises of two fundamental components which inform guidelines for the collection of data and the analysis of data. This first is to look at things *in and of themselves* in cases where a clearly defined research object is identified, and the second is that the researcher must be as unobtrusive as possible so that the research object must *reveal itself* in its own terms. The researcher should critically disabuse herself of any preconceptions and stereotypes (Spiegelberg, 1994; van Manen, 1990; 1984). Van manen (1990: 33) states: "So phenomenology is the application of logos (language and thoughtfulness) to a phenomenon (an aspect of lived experience), to what shows itself precisely as it shows itself." The phenomenological method is often presented as a series of steps, but each step does not necessarily lead to the next. The different steps should be viewed as independent by understanding them under non-linear conditions. (See also Spiegelberg 1994; van Manen 1990, 1984; Bengtsson 2005).

van Manen (1984: 42) presents a four step overview for phenomenological research:

- i. Turning to the nature of Lived Experience,
- ii. Existential Investigation,
- iii. Phenomenological Reflection, and
- iv. Phenomenological Writing.

In the present study, step (iii) 'Phenomenological Reflection', forms the basis of our analysis. This step refers to the performance of thematic analyses:

- iii. Phenomenological Reflection

Conducting thematic analysis

- Uncovering thematic aspects in life-world descriptions
- Isolating thematic statements
- Composing linguistic transformations
- Gleaning thematic descriptions from (artistic) sources
- Determining essential themes

van Manen (1984) emphasises the point that the empirical material that is used in such research should be expressed in its own terms, within the framework posed by the question that one is looking for the answer to. During the analysis, the above-mentioned steps entailed a constant alternation between part and whole, such that the meaning of the whole (the general structure) was characterised by limited meaningful units (situated structures), and *vice versa*. The resulting structure that emerged during the analysis, and which answered to the aim of the study, are the four themes that are presented in the Results section below.

4. Results

The results of this study are presented in terms of four distinct themes which, taken together, provide answers to the aim of this study. The four themes answer the following questions:

- a. What abilities did the students develop?
- b. How did their ways of working change?

The following themes were identified and are explored in detail below:

- i. 'Agents for their own learning'
- ii. 'Problem-solving strategies'
- iii. 'Belief in one's own potential for success'
- iv. 'No difference and insecurity'

Agents for their own learning

In the present study, the theme: 'Agents for their own learning', refers to the observation that the students developed an ability to take the initiative. The majority of the students took responsibility for their own learning and they found out, for themselves, the things which they needed to do to complete the elements during their teaching sessions. During our observations in the Spring of 2015, we noted that the students themselves had begun to plan how they were to continue with their work and that they looked for help from their classmates if they were confronted with a problem (Observations 6-11). One teacher observed that "they start to understand their own learning, their own processes" (Teacher 1).

Both the teachers and the students repeatedly mentioned during the interviews and in the observation sessions in the classroom, that taking responsibility for one's own learning is important. This was done during the teaching that took place in the Flipped Classroom. The preparation that the students made before their classes made it easier for them to take responsibility for their learning. In the extract below taken from an interview, this very point is made:

Interviewer: If you think about this Flipped Classroom, is there anything special that one can learn from it...something that you didn't learn if you think about last term, for example?

Student 2: You learn, like, to take responsibility...because, if you don't do this for the lessons, then you can't be part of it. And you don't understand the lesson.

The Flipped Classroom caused the students to take responsibility before the lessons and they felt that they had enough time during the lessons to work on their assignments. As a consequence, they had the opportunity to try, for themselves, different (alternative) solutions to the assignments they were tasked with. The combination of taking responsibility, both before and during the lessons, allowed the students to gradually become agents for their own learning.

Problem-solving strategies

The notion of a 'process' was repeatedly spoken of during the observations and during the interviews. After a while, the teachers and the students used what they called *the process* as a point of departure for everything that they did. The process included their way of working from the time that the students participated in the flipped classroom up until they had completed an assignment. In the final analysis, we note that the students had developed a strategy to solve problems, irrespective of the school subject, for example, whether the problems be in English, Math, Home Economics, or Art, for example. The problem-solving strategy which was developed (and then became the point of departure in almost all of the teaching sessions) is very similar to Polya's (1945/1990) model of problem-solving. This is described in four steps:

First: You have to understand the problem. What is the unknown? What are the data?

Second: Devising a plan. Have you seen the same problem before?

Third: Carrying out the plan (of the solution).

Fourth: Looking back. Can you use the result?

This was also employed as a conscious strategy by the teachers when they started using the Flipped Classroom method. In the extract below, a student describes this strategy:

Interviewer: If you have to solve an assignment, for example, let's say that [Teacher 1] or [Teacher 2], or someone, gives you an assignment to do, then what do you do?

Student 2: That depends on what it is, if it is a Math assignment then I check...I look at the

information that describes it...then I write some notes and I think and then I test the different ways to solve it.

Interviewer: Do you find it in your own way?

Student 2: Mmm, sometimes I do and then, at the end, I write what the answer...what it is.

Interviewer: What do you do if it is the wrong answer?

Student 2: Yes, well then I go back and take a look...at the different solutions.

Interviewer: Oh, okay, do you make different types of solutions first?

Student 2: I think in my head...check information and choose the solution that seems to be the easiest and the best.

The flip, in most cases, constituted the first step in the process: that is to say, the information step. The flip entailed that the process was already initiated when the students entered the classroom. "They are each other's condition, they build on each other [...] the flip is fantastic in that regard, in that it triggers the information, it helps us get the process going" (Teacher 1). Another teacher described the teaching method as: "[T]his way of working trained the students so that they were forced to analyse the whole time and analysis, of course, most often leads to well-developed arguments...and it is exactly this which is gist of the thing, that is what we want" (Teacher 3).

Belief in one's own potential for success

The results showed that, after a while, the students developed a belief in their own potential for success, by completing tasks and other elements in the teaching sessions. They discovered that they possessed the necessary tools for success, in terms of their own knowledge about how to learn new things. This began to be more and more apparent in the weeks leading up to the Christmas break in 2014, and during the rest of the data collection period (Observations 5-10). The students were comfortable with working during the lessons, and they began to constructively question more and more things, for example how certain solutions for an assignment should be presented or how the layout of a lesson element should be presented. One teacher described it as:

[...] they don't always agree with what I say as a teacher, no they don't. For example, we told them, when they were to have that assignment about eight countries, that they had to work on it together.

Then they came and said that it isn't so good, we can't do it, can't we do it this way instead? And so it was that this was a ten-times better solution. And this is crucial...that you start to believe in yourself and your own constructions, is quite clear with these students (Teacher 2).

The sentiment behind the quotation "And this is crucial...that you start to believe in yourself" appeared in several interviews with the teachers and was noticed during the lessons that were observed. On several occasions, the students demonstrated that they believed in their ability and that they had the confidence to put forward suggestions and opinions before the class. According to our analysis, the fact that the students showed this amount of confidence was partly due to the teachers' continuous work with getting the students to cooperate with, and help, each other.

No difference and insecurity

For some of the students in the classes, the change over to the Flipped Classroom, entailed a big readjustment. They were unsure of how they would deal with the classroom situation when the teacher was not in charge of going through the work, as traditionally was the case where the teacher would clearly guide the students by telling them what they should work on (Observations 2-11). Those students who showed insecurity and who did not experience any positive difference in the teaching had, in their earlier school career, achieved lower grades than the average. Such students needed a clear structure and clear instructions if they were to feel comfortable during the teaching sessions.

At the beginning of the research project, one of the teachers stated that "it takes time before the students start thinking", and that "it is important to work with these students continually, all the time, so that they, they get into it" (Teacher 1). The extract from one of the interviews below shows that the students did not know very much what the Flipped Classroom entailed, or what its purpose was. The only difference for this student was that they worked more with computers than what they did in Grade 5. During the interview, the conversation dealt with how they worked during the teaching sessions, but the student had some difficulty in describing in what he does when they work in a Flipped Classroom and showed very little understanding of what the whole thing was about. The interview took place in the Spring of 2015, by which time the students had been working in a Flipped Classroom for almost two terms:

Interviewer: [...] this thing which they call a 'Flipped Classroom', or 'flipped learning', like we have been working with. How would you describe it to a friend who might not know anything about it...What is it?

Student 9: Hum...err, I have no idea.

Interviewer: Is there any difference now, do you think, in comparison to how you worked in Grade 5?

Student 9: No, it feels just...the only difference I think is that we have computers and we work with them instead.

One of the teachers reported that weak students can find this way of working (in a Flipped Classroom) difficult, and that they need more time to get used to it:

If one were a bit forthright and looked at the weak students, who perhaps had earlier been very dependent on a fixed structure so as to...yes, so as to get things to fit. For these [students], these things can be a significant challenge, and then it can also be a significant challenge for us to get them on track [...] (Teacher 3)

These students, however, were active and showed a certain level of assuredness in certain subjects, especially in Art and Crafts. The observations (Observations 5, 7, and 10) and the conversations with these students (Students 8 and 9), however, showed that their level of involvement in these subjects depended on an original interest in these subjects, rather than the teaching method that was used.

5. Concluding discussion

This study has shown that the Flipped Classroom teaching method had overwhelmingly positive results for the majority of students, with respect to how their ways of working changed and with respect to the development of abilities which helped them in the teaching and learning that took place in the classroom. The first three themes that were reported on in the results section are such that they act as catalysts which allowed for the students' motivation for their school work to increase and allowed the students to find their work meaningful. At the same time, the fourth theme shows that this type of teaching does not suit every student. In this study, two students found the change from a traditional classroom to a Flipped Classroom upsetting, which caused them to feel unsure of themselves. The Flipped Classroom did not result in any positive change in their school work either. These 'weak' students (with respect to their school performance) found themselves best served in teaching situations which were led by the teacher and followed up on with assignments which were to be completed in class.

The research project reported on in this paper was planned and designed in such a way so that the researchers would become an as unobtrusive and natural part of the students and teachers' daily class routine as possible. This was achieved by taking into careful consideration what was going on and by influencing what took place as little as possible. It was thus suitable to collect data and to follow the participants over an extended time period, so as to gain knowledge of how the teaching method was realised when it had become a part of the every-day activities at school. The assumption was that the teaching method should present itself in its own terms, where the students' and the teachers' life-worlds met each other. Because of this, life-world phenomenology was a suitable choice of theoretical framework. The teaching is collectively supported by the teachers and the students, but it is always experienced individually. The analysis of this alternation between the collective and the individual is what informs the results of this study. This study contributes to our knowledge of the Flipped Classroom as a teaching method, and, as far as we know, there is no other previous research on this area, of the type presented here.

Because the majority of the research-based knowledge that we have about the Flipped Classroom is from studies made of university courses or at high school, it is of importance that we continue to study how this teaching method contributes to the students' learning process at younger ages too. When all is said and done, it is at the elementary school phase where the students' knowledge base for continued studies is laid, and so it is of importance that the teaching that takes place there actually contributes to the good development of their knowledge. What is more, as other studies are targeting university courses, is that comparative studies also must be carried out in elementary and secondary schools in order to understand whether Flipped Classroom improves grades or not. Furthermore, the way the teachers in this study look at the method of Flipped Classroom, might not be the same as others. Perhaps research into what the Flipped Classroom looks like (or should look like) might be of importance to understand why teachers flip their classrooms.

It would be quite reckless to introduce the Flipped Classroom as a teaching experiment in an elementary school without having the teachers properly plan for how this method is to support their students' academic development, and without having broad support from other teaching colleagues and the school principal. One example of how important that the method receive such support was noted by us some time after the project came to an end and the data collection was complete. Two of the three teachers resigned from the school because they took up posts at a different school. The result of this was that two new teachers started to teach the class, but they did not intend to use the Flipped Classroom method. Quite quickly, the teaching returned to traditional forms and the students thus again had to adjust to new teaching methods. These events and associated experiences lie outside the scope of the present study, but they did provide us with important information about what can take place in a changing school context. It is not unusual for teachers to resign or be off work because of illness, and if there are no teachers who can take the time and plan the teaching in the way which the students are used to, then a certain continuity is lost for these students.

During the time that the project was being run (i.e., during the time period that data was being collected), this teaching method showed good results for most of the students with respect to their ways of relating to knowledge, the school, and their own learning. However, the change that took place when two of the three ‘enthusiastic’ teachers (i.e., enthusiastic for the Flipped Classroom method) resigned resulted in the use of the Flipped Classroom method coming to an end. This shows that it is important to have a broad base of support in the school so as to ensure continuity with respect to teaching methods. Students should not need to suddenly adapt to teaching methods that are so fundamentally different from each other.

References

- Alsowat, H. (2016). “An EFL Flipped Classroom Teaching Model: Effects on English Language Higher-order Thinking Skills, Student Engagement and Satisfaction”. *Journal of Education and Practice* 7(9), 108-12.
- Aspers, P. (2011). “Etnografiska metoder: Att förstå och förklara samtiden”. Malmö: Liber.
- Atteberry, E. (2013). “‘Flipped Classrooms’ may not have any impact on learning”. USA TODAY. Retrieved 2015-12-05, from: <http://www.usatoday.com>
- Avdic, A. & Åkerblom, L. (2015). “Flipped Classroom and learning strategies”. In Jefferies, A., Cubric, M., Barton, K. & Lilley, M. (ed.), *Proceedings of 14th European Conference on e-Learning*, 41-49. Reading, UK: Academic Conferences Publishing.
- Bates, S. & Galloway, R. (2012). “The inverted classroom in a large enrolment introductory physics course: a case study”. Paper presented at HEA STEM Conference, London, United Kingdom.
- Bengtsson, J. (1998). “Fenomenologiska utflykter”. Göteborg: Daidalos.
- Bengtsson, J. (2005). “Med livsvärlden som grund”. Lund: Studentlitteratur.
- Bergmann, J. & Sams, A. (2012). “Flip your Classroom - Reach Every Student in Every Class Every Day”. International Society for Technology in Education.
- Bjørndal, C.R. (2005). “Det värderande ögat: observation, utvärdering och utveckling i undervisning och handledning”. Stockholm: Liber.
- Bishop, J. L. & Verleger, M. A. (2013). “The Flipped Classroom: A Survey of the Research”. Atlanta: 120th ASEE Annual Conference & Exposition.
- Brown, A. (2012): “A phenomenological study of undergraduate instructors using the inverted or Flipped Classroom model”. Retrieved 2016-01-28, from: <http://pepperdine.contentdm.oclc.org/cdm/ref/collection/p15093coll2/id/348>
- Clark, K. R. (2013). “Examining the effects of the flipped model of instruction on student engagement and performance in the secondary mathematics classroom: An action research study”. Doctoral Dissertation. Retrieved 2013-11-02, from: <http://search.proquest.com/docview/1437012328/fulltextPDF>.
- Day, J. A. & Foley, J. D. (2006). “Evaluating a web lecture intervention in a human-computer interaction course”. *IEEE Transactions on Education*, 49(4), 420-431. Doi: 10.1109/TE.2006.879792
- Enfield, J. (2013). “Looking at the impact of the Flipped Classroom Model of Instruction on undergraduate multimedia students at CSUN”. *Teach Trends: Linking Research & Practice to Improve Learning*, 57(6), 14-27.
- Heidegger, M. (1927/2008). “Being and Time”. London: Harper Perennial Modern Classics.
- Hsieh, H-F. & Shannon, S. E. (2005). “Three Approaches to Qualitative Content Analysis”. *Qualitative Health Research*, 15(9), 1277-1288.
- Husserl, E. (1900/2001). “Logical Investigations”. Vol I-III. New York: Routledge.
- Jamaludin, R. & Osman, S.Z. (2014). “The Use of a Flipped Classroom to Enhance Engagement and Promote Active Learning”. *Journal of Education and Practice*, 5(2), 124-131.
- Johnson, L. & Renner, J. (2012). “Effect of the Flipped Classroom model on a secondary computer applications course: Student and teacher perceptions, questions and student achievement”. USA: University of Louisville.
- Kjellin, H. & Birkenkrahe, M. (2015). “Improving Student Interaction and Engagement in the Flipped Classroom”. 14th European Conference on e-Learning, ECEL-2015, 2015. Retrieved 2016-04-22, from: https://books.google.se/books?id=HI5mCwAAQBAJ&pg=PA73&lpg=PA73&dq=Improving+Student+Interaction+and+Engagement+in+the+Flipped+Classroom&source=bl&ots=asAwrooNjT&sig=w3I_7VwQLTYGUGnJqKxgE6ZA_k&hl=sv&sa=X#v=onepage&q&f=false
- Kvale, S. (1997). “Interviews: An Introduction to Qualitative Research Interviewing”. London: SAGE Publications.
- Lilja, A. (2015). “Hur lärande kan möjliggöras och hindras i skolan”. Bengtsson, J. & Berntsson I. C. (Red.). *Lärande ur ett livsvärldsperspektiv*, 35-53. Malmö: Gleerups

- Mattis, K. V. (2015). "Flipped Classroom versus Traditional Textbook Instruction: Assessing Accuracy and Mental Effort at Different Levels of Mathematical Complexity". *Technology, Knowledge and Learning*, vol 20(2), 231-248. Doi: 10.1007/s10758-014-9238-0
- McLean, S., Attardi, S. M., Faden, L. & Goldszmidt, M. (2016). "Flipped Classrooms and student learning: not just surface gains". *Advances in Physiology Education*, 40(1), 47-55. Doi: 10.1152/advan.00098.2015
- Merleau-Ponty, M. (1945/2006). "Phenomenology of Perception". London: Routledge.
- Mok, H.N. (2014). "Teachingtip: The Flipped Classroom". *Journal of Information System Education*, 25, 7-11.
- Palmer, R. E. (1969). "Hermeneutics: Interpretation Theory in Schleiermacher, Dilthey, Heidegger and Gadamer". Evanston: Northwestern University Press.
- Penuel, W. R (2006). "Implementation and Effects of One-to-One Computing Initiatives: A Research Synthesis", *Journal of Research on Technology in Education*, 38(3), 329-348.
- Polya, G. (1945/1990). "How to Solve It – A New Aspect of Mathematical Method". England: Penguin book.
- Reeve, J. (2013). "How students create motivationally supportive learning environments for themselves: The concept of agentic engagement". *Journal of Educational Psychology*, 105(3), 579-595. Doi: 10.1037/a0032690
- Schutz, A. (1967). "The phenomenology of the social world". Evanston: Northwestern University Press.
- Solstuen, A. (2014). "Et nytt verktøy i verktøykassa - Omvendt musikkundervisning i grunnskolen". Hedmark: Høgskolen i Hedmark.
- Spiegelberg, H. (1994). "The Phenomenological Movement – A Historical Introduction". (3 Ed). London: Kluwer Academic Publishers Group.
- Strayer, J. (2007). "The Effects of the Classroom Flip on the Learning Environment: A Comparison of Learning Activity in a Traditional Classroom and a Flip Classroom that used an Intelligent Tutoring System". USA: Ohio State University.
- Swedish Research Council (2011). "Good research practice". Retrieved 2016-12-10, from: <https://publikationer.vr.se>
- Tawfik, A. & Lilly, C. (2015). "Using a Flipped Classroom Approach to Support Problem-Based Learning". *Technology, Knowledge and Learning*, 20(3), 299-315. Doi: 10.1007/s10758-015-9262-8
- van Manen, M. (1984). "Practicing Phenomenological Writing". The University of Alberta. From: <https://ejournals.library.ualberta.ca/index.php/pandp/article/view/14931/11752>
- van Manen, M. (1990). "Researching lived experience: Human science for an action sensitive pedagogy" (2 ed.). New York: State University of New York Press.
- van Manen, M. (2007). "Phenomenology of Practice". *Phenomenology & Practice*. 1(1), 11-30.
- van Vliet, E. A., Winnips, J. C. & Brouwer, N. (2015). "Flipped-Class Pedagogy Enhances Student Metacognition and Collaborative-Learning Strategies in Higher Education But Effect Does Not Persist". *CBE – Life Sciences Education*, 14, 1-10.
- Wang, X-H., Wang, J-P., Wen, F-J., Wang, J. & Tao, J-Q. (2016). "Exploration and Practice of Blended Teaching Model Based Flipped Classroom and SPOC in higher University". *Journal of Education and Practice*, 7(10), 99-104.
- Zhi Chen, E. (2014). "Flipped Classroom Model and Its Implementation in a Computer Programming Course". *Lärlärdom: Högskolepedagogisk Konferens 2014, Blekinge Tekniska Högskola*, 180-200, Retrieved 2016-04-18, from: <http://larlarldom2014.pressbooks.com/chapter/flipped-classroom-model-and-its-implementation-in-a-computer-programming-course/>

First Author Mikael Segolsson, PhD and Assistant Professor at Jönköping University, Sweden. Phd degree exam 2011. Segolsson works as a lecturer in teaching and learning, mainly focusing on practice based educational research. He also works with theory-philosophical studies about learning process in school.

Second Author -Åsa Hirsh is a PhD and assistant professor in Education at Jönköping University, Sweden. Hirsh's research focus lies in the fields of instruction, educational assessment and teacher-driven school development.

Third Author Johan Bäcklund is a lecturer in Educational Sciences at Jönköping University, Sweden with a Master's degree (MA MSc) in Pedagogy from 2016. Bäcklund works as a lecturer in teaching and learning, mainly focusing on digital technologies in collaboration with learning and teaching. He also researches aspects of quality in regards to placement internship.