



## ARTICLE

### **Vikings and iPads: how iPads may influence historical thinking in the classroom**

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## **Vikings and iPads: how iPads may influence historical thinking in the classroom**

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### **Abstract**

The last few years have seen the introduction of technology in Norwegian classrooms without much research data on how this affects learning. This article discusses whether the introduction of iPads in a Norwegian classroom influences how history is taught and what the pupils learn. One could imagine that when iPads with its learning applications and unlimited access to the internet replaces textbooks and pen and paper as the main learning platform it might help the transition from mainly gaining “knowing what” knowledge to also gaining “knowing how” knowledge, consequently learning historical thinking. We explore whether this is the case. We did this by observing two sixth grade classes at two different schools both learning about the Viking age over a six week period. One class using iPads as their main learning platform and one using a broader set of learning platforms. The aim of this article is to contribute to the ongoing academic and popular discourse on how the widespread use of digital tools such as iPads impacts on learning, and in this case, if it influences the learning of history.

**Keywords:** Viking age, iPad, history teaching, “knowing how” and “knowing what” knowledge, historical thinking, school observation, digital learning

## **Introduction**

In the last few years, we have seen the introduction of Apple's iPad tablet computer as the main digital learning platform in many Norwegian classrooms. The use of iPads in education is attributed to both change and expanding classroom practices by enriching learning experiences and improving learning outcomes, but in many cases failing to do so (Hembre and Warth, 2020). In history classes, there has been little research on how this digital platform affects history learning and history didactics. What happens when iPads replace textbooks and pen and paper as the main learning tool and source of information in history classes? By putting textbooks in the background, one might think that the teacher becomes freer to explore and decide what history the pupils should learn. One could further imagine that the use of digital devices, like iPads, might help the transition from pupils mainly gaining 'knowing what' knowledge to gaining both 'knowing what' and 'knowing how' knowledge, consequently learning historical thinking. Seixas and Morton (2013) believe historical thinking can help pupils understand how history is constructed and which historical arguments are valid.

The Norwegian national curriculum clearly states that 'knowing how' knowledge, what Justvik (2014) calls methodological knowledge, is central to learning history. Despite this, studies show pupils still largely learn 'knowing what' knowledge centring on historical 'facts' by reproducing the content of the textbook (Johanson, 2015; Kvande and Naastad, 2013; Justvik, 2014; Lund, 2012; Viator, 2012; Rosenlund, 2011). A Norwegian study has also indicated that after the introduction of devices such as iPads, pupils still tend to reproduce history and show little sign of getting increased 'knowing how' knowledge (Kravlen, 2016). Thus, there is a need for more research on how this introduction of iPads affects learning processes in the classroom in general and in history didactics specifically.

On this basis, we explore whether the introduction of iPads as the main learning platform affects what kind of history pupils learn. We do this by observing two sixth grade classes at two different schools both learning about the Viking Age, one class using iPads as their main learning platform and the other class using a broader set of learning platforms including whiteboard, pen and paper, textbooks and digital tools. The aim of this article is to contribute to the ongoing academic and popular discourse on how the widespread use of digital tools such as iPads impacts on learning and in this case how it influences historical learning. Does the widespread introduction of iPads in history classes help pupils get both 'knowing what' and 'knowing how' knowledge and thereby enhance their historical thinking?

In the following we will first present the empirical context of this article: we present the two classrooms we observed and discuss our observation methodology. Then we outline how we understand historical thinking concepts, the terms 'knowing what' knowledge, 'knowing how' knowledge and how these knowledges are implemented in the Norwegian curricula. In the main part of this article, we present and discuss our findings. We present the learning processes in the two classrooms and discuss what impact the digitalising of the iPad classroom (Class 1) might have had on historical thinking compared to the learning processes in the classroom using a broader set of platforms (Class 2). This is structured in two parts. First, we present how the pupils in the two classrooms worked with the Viking Age. Then we present and discuss what knowledges they worked towards during our observation period.

## **With open doors to the world: the empirical context**

In 2015 the school in which Class 1 is located decided to introduce the use of iPads in all subjects and in all learning activities from first to seventh grade. The school established its own iPad project: 'With open doors to the World: A pilot to massive use of technology in education' to reform and renew how the school worked with their learning environment in a broad sense and with didactics in each subject. The vision for the project was 'more learning for all' (iPad project, 2015). The background and objectives for the project were twofold. First, the overall goal was to enhance the learning environment and to reach the curriculums' overall objective to prepare the pupils for the rapid changes of an increasingly digital world. According to the project description, the use of iPads could help the cancelling of socio-economic differences in the classroom and help pupils become full members of our democratic society. Second, the thinking behind the project was to change the overall didactics at the school and how teachers and pupils worked in the classroom. One stated reason for introducing iPads was that national tests are held digitally and demand digital skills. In accordance with this, the school wanted to develop the pupils' digital skills to prepare them for the test in the best way possible. To make the pupils better readers and writers was another stated goal, as was to make the pupils producers of their own learning instead of being consumers fed by their teachers and textbooks. In short, the school wanted to develop their own digital didactical practice (iPad project, 2015) and they wanted to develop a model that could be used in all schools in the municipality. This model would be able to meet the demands of the curricula for digital competence in a changing environment. In practical terms, this initially meant replacing textbooks with iPads so that the iPads became the main platform for reading, writing and learning in all subjects.

The project describes many intermediate objectives that are particularly relevant to this study. It states that the pupils should become producers of their own learning resources, develop enhanced digital judgement, understand how they themselves can influence proceedings and history itself and be able to use different sources and know how to check sources. These are objectives that, as we will show, correspond with Seixas and Morton's (2013) understanding of what historical thinking is. The pupils should develop digital competence 'to meet the future, to develop critical thinking and problem solving, be more creative and innovative' (iPad project, 2015). When we did our observation in 2018, some of these changes had been modified, for example, textbooks had been partly reintroduced, but iPads were still the main platform used in every history lesson we observed. Each pupil had their personal iPad.

## **Method: Observing Class 1 and Class 2**

The classroom is a complex arena for learning with its social interactions between pupils and between pupils and teachers, its different resources like number of pupils, number of teachers in the classroom, access to learning tools, size and shape of the physical environment, the difference in classroom culture and the different didactical practices and worldviews that teachers have. This learning environment shapes and decides what and how pupils learn. There are essential similarities between the two sixth grade classes in our study that make them relevant and suitable for comparison. Both classes are localised in the same municipality, a middle-sized town in the multi-cultural northern periphery of Norway. Both schools are owned and run by the municipality and have the same financial foundation

and the same resources per pupil. Both classes are obliged to follow the same curriculum. All pupils were of the same age, eleven and twelve years old. There were approximately the same number of pupils in both classrooms with comparable proportions of boys and girls. Both classrooms had teachers with comparable education and seniority. Both schools are of the same age and the physical outlay and equipment are of the same standard. The socio-economic, cultural and ethnic background of the pupils are comparable. Both classes worked on the same theme throughout our observation period, spending a comparable number of hours per week working on the subject.

There are also differences that are important to mention, such as the organisation of the classroom. Class 1 had just one teacher in the classroom most of the time while Class 2 had two. The other main difference is related to how they used technology, as Class 1 was located in the iPad-school while Class 2 was not. We strategically singled out the two classrooms for the reasons presented above to be able to compare what happened in two similar environments, but where the use of iPads was a differing factor.

Observing if and how historical thinking changes as a result of digital practices is a challenge in itself. In general, because the classroom is, as mentioned, a complex cultural and didactical arena, and in our specific context, because it is difficult to identify whether changes are caused by the use of iPads or by other parts of the learning environment. To meet these challenges, we placed two observers in the classrooms at all times. Sitting at the back of the classrooms, we recorded (in writing) our observations throughout class. We observed the two classrooms over a period of six weeks, approximately 15 to 20 hours in each classroom. This made us fortunate enough to follow the learning process from 'start to finish' so that we could witness how and what the pupils learned. We structured our observations in relation to the learning goals stated in the iPad project and to Seixas and Morton's (2013) six concepts of historical thinking. We observed how the pupils constructed, produced and shared knowledge and to what degree a pupil-centred method of learning was part of the learning process. In our findings and discussion, we have documented this as how the pupils learned. We documented our observation of what they learned using Seixas and Morton's (2013) concepts. After each lesson, we discussed our observations to get a common understanding of what we had seen. We also had a running dialogue with the teachers involved and could discuss our observations with them. We also got access to some of the products the pupils made, both written and multimodal texts.

Even if the classrooms were comparable it is difficult to give definite answers as to whether differences in how the pupils learned or what they learned was due to the difference in digital practices alone or if they were connected to other parts of the learning environment. What we are able to do is to show what they did in the classrooms and discuss what the pupils learned. Furthermore, we are able to suggest how the use of iPads may have influenced both how and what the pupils in Class 1 learned compared to the pupils of Class 2. As a result, we can compare similarities and differences in how the use of iPads may have influenced historical thinking.

## **Theory: the didactics of history and the Norwegian curricula**

### **History didactics**

It is important to provide pupils with both 'knowing what' knowledge and 'knowing-how' knowledge to support critical thinking and historical understanding (Lund, 2016). 'Knowing what' knowledge signifies that pupils learn facts about the past, whilst 'knowing-how' knowledge implies that pupils understand how we study and establish these facts (Lund, 2016). Justvik (2014) calls 'knowing what' knowledge factual knowledge and 'knowing how' knowledge methodical knowledge. Lesh (2011) claims that 'knowing what' knowledge is mostly about recognising dates, individuals and events, and that it usually originates from textbooks. Furthermore, Syse (2011) points out that the focus on factual aspects of history may lead to the understanding that there is consensus about the narratives concerning the past. He also points out that the pupils learn less about how history is constructed and how history is used in the present.

Kvande and Naastad (2013) argue that it is not enough for pupils to learn about facts; they have to analyse and discuss them as well. In other words, they need both types of knowledge. However, integrating these knowledges can be hard and research shows that history as a school subject often practices 'knowing what' knowledge and the reproduction of knowledge that it represents (Johanson, 2015; Kvande and Naastad, 2013; Justvik, 2014; Lund, 2012; Viator, 2012; Rosenlund, 2011). One way of integrating both 'knowing how' and 'knowing what' knowledge is to work with historical thinking. Fránquiz and Salinas argue historical thinking 'requires pupils to critically read primary sources, to inquire deeply and critique historical narratives, and to form reasoned conclusions about the past based on corroborating sources' (2011, p.197).

Kvande and Naastad (2020) states that when historical thinking is understood and used in history education, it might help pupils understand their own meaningful narratives. Seixas and Morton (2013) have introduced six historical thinking concepts that are interdependent. These are: establish historical significance, use primary source as evidence, identify continuity and change, analyze cause and consequence, take historical perspective, and understand the ethical dimension of historical interpretation (Seixas and Morton, 2013).

To establish historical significance is to decide what historical events, narratives or incidents are worth telling about—what events or persons are given space in history books, textbooks and in curricula. Pupils should understand that only excerpts of narratives are told and that there are many stories that differ from the narratives included in their textbook. In the curricula and textbooks, for example, there are certain themes or narratives that seem more important than others. The pupils however need to know why these themes are deemed worth learning about and why other aspects of history are not.

Seixas and Morton's second concept of historical thinking is the use of primary sources as evidence. The pupils need to get insight into how sources are selected, used and interpreted when arguing historically. Seixas and Peck (2004) argue that schools should provide pupils with skills enabling them to critically approach historical narratives. To be able to find and interpret different sources is, according to Kvande and Naastad (2013), also a premise for becoming a critical citizen.

Moreover, historical thinking is created by letting pupils identify and understand the interrelated concepts of continuity and change (Seixas, 2017). Questions inherent in these concepts are: what remains the same, what changes, what changes fast and what changes slowly and what turning points make history change directions. To understand historical changes, different causal explanations are vital (Kvande and Naastad, 2013). Pupils should accordingly analyse why some conditions have led to others (Seixas and Morton, 2013).

Seixas and Morton (2013, p.136) state that it is 'an ocean of world views that can lie between current worldviews and those of earlier periods of history'. When pupils understand this, they are enabled to understand 'the social, cultural, intellectual, and emotional settings that shaped people's action in the past' (Historical Thinking Project, 2006), or in other words they are able to take a historical perspective. This is difficult, however, as it is natural for pupils to take the view of the present when interpreting the past and assume that people in the past thought similarly to them (Lund, 2016). Wineburg calls this 'presentism' (Lund, 2016) and according to Seixas and Morton (2013), pupils tend to judge the past quite harshly, as they judge the past by their present standards. Not only should pupils be made able to take a historical perspective, they should also be enabled to learn from the past. Seixas (2006, p.144) argues, 'why would we undertake the historical project at all, if not to orient ourselves morally?' This is what Seixas and Morton (2013) call being able to understand the ethical dimensions of historical interpretation.

All these concepts tie what Seixas (2006) calls historical thinking together with the competencies of being historically literate. Historical thinking enables pupils to understand the past and expand their historical understanding. Ferrer (2020, p.112 referring to Seixas and Morton, 2013, p.5) says when pupils are taught and understand historical thinking, they understand that the history textbook is one of many places to seek historical information. They understand that history is construction, that the past can be both used and misused.

### **Historical thinking and the Norwegian curricula**

The Norwegian social studies curriculum consists of social science, geography and history<sup>1</sup>. We have concentrated on the history goals in secondary school (after seventh grade) as this is the relevant curriculum for the classes we observed. The main goal relevant to our study states that 'the pupils should be able to talk about Norwegian history from the Viking Age to the Danish era, and be able to examine one main historical event from this period' (Ministry of Education and Research, 2013). The curriculum also has goals that correspond with Seixas and Morton's (2013) concept of historical thinking. The students should be able to read and discuss texts about people living under different conditions in both time and space, conduct and present research, use digital tools to present assignments, use historical terms in their own writing and be able to place historical events on a timeline and on maps (Ministry of Education and Research, 2013). Whilst working with these aims, the pupils

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<sup>1</sup> Kunnskapsløftet (K06, The Knowledge Promotion Reform) was the curriculum at the time of our study. In the autumn of 2020, a new curriculum, Fagfornyelsen, was implemented in primary and secondary school. In this article we refer to Kunnskapsløftet.

must be stimulated to 'critical assessment about established and new knowledge in social science using sources and source criticism...' (Ministry of Education and Research, 2013).

Kvande and Naastad (2013) explain that the curriculum is about knowing facts (knowing what knowledge), as well as understanding historical methods (knowing how knowledge), in addition to knowing and understanding how history is important for us today. Although historical thinking is included in many curricula, it is often not given proper meaning (Seixas, 2006). Koritzinsky (2012) claims that the Norwegian curriculum has adopted a social constructivist view of knowledge, which means that knowledge is a dynamic process. In this perspective there are competing and different interpretations of the past (Lenz and Nilssen, 2011) and the past is open to debate and changeable. According to the curriculum, history should enhance pupils' ability to think critically and to take different perspectives (Ministry of Education and Research, 2013). In other words, the pupils should be enabled to 'think about how historians transform the past into history and help them to begin constructing history by themselves' as Seixas and Morton (2013, p.3) put it.

## **Findings and discussion**

In this section we present and discuss our findings from the observations in the two classrooms. First, we present and discuss the learning process, or how the pupils learned, in the two classrooms. Second, we present and discuss what the pupils learned. What they learned is divided into what 'knowing what' knowledge and what 'knowing how' knowledge they gained. As mentioned above, 'learning environment' is a broad collective term for what goes on in the classroom as a whole: didactically, socially and culturally, and as stated in our introduction our aim is not to present the whole picture of how and what the pupils learned, but to examine how the use of iPads might have affected sixth graders' 'knowing what' and 'knowing how' knowledge about the Viking Age and how it may have thereby influenced historical thinking.

### **How did the pupils learn about the Vikings?**

As stated earlier, both classes worked continuously on the same historical subject throughout the six-week observation period. In classroom one the iPads were used in most sessions. It was used to introduce the assignments, to produce multimodal texts, for both individual work and group work and to present and share the pupils' production of knowledge. The pupils used different learning applications in their work and their technical competence in using them seemed effortless. They used apps like iThoughts, Keynote, Smartboard, Puppet pals, Showbie and films. Additionally, internet sources were used quite often, alongside the textbook. In classroom two the learning environment and practices were not tied to one specific platform or device. The pupils used laptops in addition to the mainly analogue platform of textbooks and pen and paper. The pupils did not have their own PC but shared a limited number of units with the rest of the school. The school had a set of iPads that had to be booked in advance, and they were only used at the end of the observation period when they had a Kahoot quiz about the Viking Age. Furthermore, there was one PC in the classroom available for the teacher—mostly used to show films or cartoons about the Viking Age. In both classes, group work dominated and there was little individual work.

### **Production**

Producing knowledge was central to learning in both classes. The pupils in Class 1 produced multimodal texts both individually and in groups, whereas in Class 2 they mainly produced written text. In both classrooms the production was concentrated on factual knowledge answering questions like 'What happened? When did it happen? Where and how did the Vikings travel?' Many of the texts produced can be classified as reproductions of what they found on the internet. In Class 1 they produced multimodal text with sound, animation and conversations, for example by using Puppet Pals to create an interview with an invented imaginary Viking. They had a fictional modern journalist interviewing a Viking. The journalist asked questions copied from the textbook, but the pupils worked out the Vikings' answers. Voices were put on the video. The interviews were shared in plenum via the smartboard. The pupils in Class 2 worked more on producing written texts either by hand or by PC. The methods of production were what might be described as more traditional. In one session in Class 2, the pupils, together with their teacher, formulated questions for what they wanted to know about the Viking Age. To find answers to these questions they used the textbook. In another lesson the assignment was to write a longer text based on questions formulated by the teacher.

### **Sharing**

In both classes pupils worked in groups and shared facts and thoughts with each other. Sharing was an expressed goal in Class 1 and the pupils seemed to be sharing more than the pupils in Class 2, using different methods when sharing. Class 1 used iPads, a smartboard and specific apps to share their multimodal texts with each other, often doing the sharing in plenum. They shared their work on different concepts of the Viking Age, they shared the film with an interview of a Viking and also shared a presentation of three photos from the Viking Age. The teacher could easily show the pupils photos, sources and maps of the Viking Age via the smartboard. For example, when one pupil asked whether there existed pictures of this period, the teacher showed pictures of a grave and a church. Sharing photos and information from the internet is something we observed the teacher did quite a lot. In Class 2, pupils shared by oral discussion, by dialogue and by answering questions from the teacher in plenum. When working on the longer writing assignment the pupils mainly shared their work with the teachers and some of the pupils in the class. However, sharing in both classes did not promote discussions other than comments or follow-ups from the teachers.

### **Pupil-centred methods of learning**

The main impression of the two classrooms is that there was little tutoring by the teachers and quite a lot of pupil-centred work where the teachers functioned more as support and help than as lecturers. In both classes, the pupils worked in teams most of the time. However, in Class 1 the questions were either made by the teacher or found in the textbook. In one session in Class 2, the pupils, together with the teachers, composed questions that they all found interesting, but premeditated questions designed by the teacher were also used in this class.

## **What did the pupils learn about the Vikings and historical thinking?**

We have established that 'knowing what' knowledge and 'knowing how' knowledge are essential for developing historical thinking. We will now present what kind of knowledge the pupils had obtained during the six weeks working with the Viking Age.

### **'Knowing what' knowledge**

We start with presenting and discussing the 'knowing what' knowledge we observed. Who were the Vikings? How did they live? What tasks did women and men have? How did they raid, loot and trade? What belief system did the Vikings have? These are questions the pupils in both classrooms worked with throughout our observation.

In both classes they showed their knowledge by sharing their factual knowledge with each other and with the teachers. It is hard to find any significant difference in what factual knowledge the pupils gained using different learning platforms. The assignments and learning objectives were quite similar in both classes and centred on the questions stated above.

The pupils showed both through their presentations in class and in their written assignments that they knew who the Vikings were. In Class 1 they worked with different concepts such as Vikings as 'explorers', 'a Viking kingdom', 'archaeology', 'the Oseberg ship' (an intact Viking ship that was found in the early 1900s), 'Viken' (the Oslo fjord area), 'Norden' (the Nordic countries) and Viking 'expeditions'. They answered questions from their textbook and then used Puppet Pals to create a movie where they visualised their answers to the textbook questions. They used Keynote to describe how a craftsman in the Viking Age worked and to define what faith the Vikings had before the christening of Norway. They were free to use the internet to find sources. This resulted in some pupils mainly using copy and paste. Later they watched two short films about Vikings exploring the New World. While watching the films they wrote down key words that they used, writing a factual text in Book Creator. Using iPads and apps such as iThoughts, Book Creator and Showbie made it easier for the teacher in Class 1 to get an overview of the progression of each pupil's work.

In Class 2 they worked with similar concepts and questions as in Class 1. They predominantly used the textbook as their main learning resource to get factual knowledge. By using the textbook they learned about sources to our knowledge of the Vikings, their ships, their gods and their travels and explorations. They examined how men and women worked together, what food they ate, what clothes they wore and the strong position of women in society. As one of their main assignments the pupils in Class 2 wrote a text centred on key concepts similar to the concepts used in Class 1: life in the Viking Age, the Viking ships and their religion. In this assignment the pupils were able to spend time to read and produce a longer text.

### **'Knowing how' knowledge**

As shown above, we found that the pupils of both classrooms seemed to gain a significant amount of 'knowing what' knowledge. However, we found that the approach to 'knowing how' knowledge differed between the two classrooms. Class 2 seemed to be focused more on why it is important to learn about history and the Vikings, on what the history of the Vikings mean to our society today and on how we

know so much about the Vikings. Questions reflected a greater emphasis on 'knowing what' knowledge. Class 1 reflected on such questions to a lesser extent. By dividing our findings into four parts corresponding to Seixas and Morton's (2013) concepts of historical thinking, we discuss these differences between the two classes. We look at how they reflected on how history is constructed and how the use of different sources can construct different narratives of the past, historical significance, continuity and change, causes and consequences and historical empathy. These aspects are interrelated and tightly knit together.

### **How history is constructed and the use of historical sources**

Both classes reflected on how we know about our past. The pupils in Class 1 talked about how we know about the past and commented that we can learn history through oral and written narratives, through TV and radio, through items from the past and through writing, drawings and paintings from the past. Their reflection on how history is constructed led to a discussion on how history changes in accordance to what questions we ask about the past. By asking different questions we can get different knowledge. The teacher in Class 2 asked 'How do historians know about the past?' The pupils reflected on this and talked about how we can use Google and internet sources, talk to elderly people, use our own imagination and share history with each other. They talked about how archaeologists have found large ships, graves, coins and other items buried in the ground. The teacher additionally talked about how Snorre Sturlassons' *Heimskringla*, his story of the Norwegian kings, was an important source even if it was partly fictional. In this way, they reflected on how different sources can be used to tell (different) stories concerning the past.

In Class 2 the pupils were occupied with what becomes history and how stories from the past are constructed. They talked about different sources of history and how new sources becoming available can change the narratives about the past. They talked about how both historians and archaeologists work to construct narratives about the Viking Age. 'We also have to find out [about Vikings]', the teacher said. 'What if we don't [find it in the textbooks]?', one of the pupils replied. 'Then we have to use other sources', the teacher explained. They read about the Oseberg ship and how this provided information about the period. They talked about Ottars' tale to King Alfred of England from 890 as an example of a primary source. When a pupil asked how they could know that the Vikings plundered, stole and raped, the teacher told them about a priest in one of the plundered monasteries writing it down.

Both classes had assignments where the aim was to work with different source material. According to Seixas and Morton (2013), pupils need to understand how sources are selected, used and interpreted when arguing historically. In Class 1 the pupils worked on an assignment where they used three different sources to answer three questions: 'What did the Vikings believe in? How and where did the Vikings live? And where did they travel?' To answer these questions they used internet sources, the textbook and books from the library. Although many of the pupils used copy and paste, the assignment led to some interesting questions and discussions.

### **Historical significance**

As we have shown, determining historical significance is a process used to evaluate what was significant about selected events, people and developments in the past. We found that both classes worked with historical significance, but more extensively in Class 2. When presenting their findings in Class 1, one group had found a swastika when searching the internet. 'Why do we find Nazi symbols when searching for Vikings on the internet?' 'Were the Vikings Nazis?' they wondered. While discussing this, one pupil suggested it might have been the other way around: that the Nazis were inspired by the Vikings and their mythology and had taken their symbol. This discussion showed how using Google can lead to a discussion that brings several aspects of historical thinking to the forefront.

Class 2 started their work on the Viking Age by reflecting on and discussing what historical events, persons, narratives or incidents our society finds worth talking about. The pupils philosophised about questions such as 'What is history?' and 'Why do we have to learn history?' Questions like these can help pupils get a sense of historical significance (Seixas and Morton, 2013). The pupils were asked to reflect on these questions before discussing them in plenum. The pupils should be enabled to understand that there are many stories that could be told and that these stories may differ from the ones in their textbook. The pupils in classroom two understood history as 'the old days', something that has happened and as both fictional stories and factual narratives. The teacher underlined that what becomes history is not known to those involved in the process, but becomes history in retrospect. Reflecting on what history is and when and how it was shaped corresponds with Seixas and Morton's concept of historical thinking and with the learning objectives of the curriculum. By bringing up the question of whether the Viking Age has an impact on us today, the teacher promoted thinking about historical significance for the pupils. The teacher explained that this was the period Norway became Christian and the reason we have Christmas presents. Furthermore, he talked about the end of the Viking Age in 1066 and explained that the stadium of Chelsea FC is named Stamford Bridge, where the last battle of the Viking era took place. The teacher used this example to illustrate how history still plays a part in the present.

### **Continuity and change, causes and consequences**

According to Seixas and Morton (2013) one way of working with continuity and change can be to compare a break in history, like a revolution, with a period of continuity like the middle ages. We found that neither class worked extensively on these aspects. In Class 1 they talked about the countries the Vikings lived in, like Iceland. The pupils were told that the Icelandic population are descendants of Vikings and that their language is quite similar to that of their ancestors. Thus, the pupils learned about continuity and the consequences of history. The teacher in Class 2 talked about how the world we live in is a product of what has happened in the past. In this way, the teacher showed the pupils that they are part of history. When the teacher in Class 2 drew a timeline on the whiteboard, starting with the Stone Age up until today, it provided a good way of visualising history as a continuous process without empty spaces. On this timeline the Viking Age was placed near the end of the line. The teacher explained that he did this in order to make the pupils understand that in the context of the earth's existence it was not that long ago. Neither classes worked extensively on causes and consequences.

They concentrated on 'knowing what' knowledge such as how the Vikings lived and what they did. However, both classes read about and watched videos of why they travelled and looted. Additionally, there were questions such as why they buried their dead as they did. In Class 1 the teacher asked why King Olav II (the Holy) was holy. The teacher told the pupils that Olav was important for the gathering of Norway into one kingdom as well as bringing Christianity to the country. In Class 2 the teacher wanted the pupils to reflect on whether the Viking Age had consequences for our society today.

### **Historical empathy**

When pupils take a historical perspective or have historical empathy, they understand 'the settings that shaped people's action in the past' (Historical Thinking Project, 2006). In this way they avoid 'presentism'. It is important for pupils to understand the world from another perspective than the present. Both classes worked on historical empathy to some extent. The Puppet Pals film made in Class 1 in which a Viking from the past was interviewed is a good example of how one can work with historical empathy, as the pupils were trying to answer while taking into consideration the Vikings' point of view.

In another session, talking about the belief system of the Vikings, one of the pupils said: 'They were stupid to think the world was flat in the past'. The teacher explained they had no basis of knowing this was not the case at the time. In a later session, one pupil asked if there are photos from the Viking Age, obviously putting on glasses from the present. 'There are graves', the teacher answered, and found a picture of one on the internet using an iPad.

### **Conclusions**

As mentioned in our presentation of the iPad project, one main goal was to shape a new digital didactical practice at the school that could also be used in all schools in the municipality. The use of iPads was seen as a way for pupils to score better in national tests and to meet the curriculum's requirement that states that the children have to be prepared for a constantly changing world where technological ability and critical thinking will be even more important. These stated aims in the project description correspond with stated aims in the curriculum and in many ways coincide with what Seixas and Morton (2013) present as historical thinking. Studying history can help pupils gain critical thinking through using different source materials. They can use historical knowledge to understand the past, the present and how one might prepare for the future. We found that the pupils in both classes worked towards these goals, regardless of what learning platform they used.

We separated our findings into two categories, which are tightly knit together and overlap. We discussed how the pupils learned and what the pupils learned in the two classrooms. Our findings suggest that there were no major differences in how the pupils learned despite one class mainly using iPads while the other did not. We found that Class 1 found a way to structure and organise classes by using Showbie and iThoughts at the start of each class to present assignments and learning aims. They used iPads to produce and share. Do these forms of organising, producing and sharing represent a different kind of history didactic? When it comes to our main question in this article: does the introduction of iPads in history classes enhance historical thinking by helping pupils get both 'knowing what' and 'knowing how' knowledge as are stated aims in the Norwegian curricula? We cannot give any conclusive evidence to

either support or reject such claim, but we can suggest some tentative answers. First of all, it is hard to find evidence that supports the claim that the use of iPads leads to more historical thinking. Both classes produced and shared. Both classes were focused on factual historical knowledge and both worked with 'knowing how' knowledge even though their learning platforms and focus on technology were different. One might argue that the pupils in classroom one got more technical knowhow and that the use of iPads might have helped sharing and helped the teacher to get a better view of what the pupils produced and learned. However, these are not didactic benefits specific to history, but more general pedagogic benefits.

As one might say Class 1 learned more technical knowhow, our observations suggest that the teacher in Class 2 put more emphasis on the 'knowing how' knowledge. In classroom two they introduced the theme of the Viking Age more openly and with an explorative approach, engaging the pupils, whereas in classroom one the main focus was more on the 'knowing what' knowledge. By asking questions such as what history is and why we should learn history, the pupils in Class 2 were invited to reflect on how history is made and their own position in history. These types of questions were also reflected on in classroom one, but not to the same extent. The pupils were invited to explore changes and continuity in the Viking Age and to find out causes and effects of how the Vikings lived. Mostly, however, they used their textbooks to find the answers to these questions. One might argue that their capacity for historical thinking did not improve significantly in either classroom.

We have found no evidence to suggest that the use of iPads and didactical applications such as iThoughts, Showbie or Puppet Pals in themselves changed the way history was taught and what the pupils learned. There is a potential to use iPads in ways that can benefit history didactics, but to leverage this potential is dependent on much more than the technology itself. We found no significant differences in the approach to how pupils could learn about the Vikings that can be attributed to the use of technology alone. Therefore, the differences we found, mainly in regards to the 'knowing how' knowledge, might be attributed to other and more relevant explanations that relate to different didactical approaches in the classroom by the teachers, the teachers experience, knowledge and attitudes towards both technology and history, and to the learning environment in a broader sense. One might conclude that what learning platform is used is subordinate to how the learning platform is used. Further research is needed to expand our understanding of how iPads and other digital learning platforms may be used and how using these platforms can affect historical learning and thinking. One suggestion would be to study how different digital applications such as Puppet Pals can be used. Following the didactical practices in one classroom over a longer period of time using different learning platforms, both digital and analogue, might also help us understand how the use of technology can shape history teaching and learning.

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