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## STUDENT VOICES: INNOVATIVE PEDAGOGICAL MODELS FOR COURSE DESIGN

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### Abstract

Ever since Marc Prensky introduced the term Digital Natives there has been an ongoing debate about digital skills and expectations of today's students. Some, like Don Tapscott, claim that they are grown up digital, others claim the term 'digital native' is overrated and wrong. This paper reports in depth interviews and research with students, addressing their experiences, competence and expectations regarding use of digital technology in higher education. The paper includes students from three different higher education institutions and from different study programs. Some of the students were part of a larger project aimed at flipping the lecture, meaning all lectures were replaced with video instructions, and the "lecture time" used alternatively. The findings show that students' expectations on pedagogy and use of technology in higher education are strongly affected by current practice as well as students' prior experiences in K1-13 education. Students, however, quickly embrace new ways of learning when introduced to them. The paper reviews differences in the student use of digital technology for learning.

### Overview

In 1999 Don Tapscott (1999) wrote *Growing Up Digital*. This claimed there was a new generation that learned and communicated differently than previous generations due to the use and impact of digital technology. Marc Prensky (2001) introduced the term Digital Natives to explain the habits of this generation. Veen and Vrakking (2006) introduced the term *homo zappiens* to describe the same trends and practices. Still, many still refuse to accept there is a fundamental difference between the generation born after 1990 and previous ones (Bennet et al. 2008). Whether this generation learns differently as stated by Palfrey and Gasser (2008) or demands different approaches, has been heavily debated (Bennet & Marton, 2010). Many voices (Helsper & Eynon, 2010; Engen et al., 2014; Houlton, 2010) have questioned these arguments. According to Rikhye et al. (2009) no significant empirical evidence exists to support Prensky's conjecture. This paper remains neutral. This study aims to describe the practices students use when they enter university and how strongly these existing practices affect learning in terms of their expectations on what it is like to study. Practical questions centre on how students, when exposed to flipped classrooms, experience learning? As claimed by some, do students expect a different approach (Prensky, 2001; UNESCO, 2011)?

Traditional teaching patterns assigned textbooks for students to read, listen to lectures and take class notes, taking tests in class or on campus and work on problem assignments outside school. Lectures have been the main way of teaching in Universities since their foundation in Bologna in 1088. This is not the most efficient way of learning according to a meta-analysis of 225 undergraduate STEM Teaching methods (Freeman et al., 2014). Studies show that only 10% of students remember what is taught in lectures. This has led some to question the lecture as the best way of teaching and learning (Mazur, 2009).

Technological development has lowered the threshold for implementing digital technology in teaching and learning. Even though surveys like the Norwegian Monitor (Hatlevik et al., 2013) show progress is slow, there are many lecturers experimenting with new ways of teaching and learning using digital technology. One very popular technology is the use of video. The success of Salman Khan and Khan Academy is well known. Since 2012 more and more universities deliver their courses online, as MOOCs, relying heavily on use of video for delivering instructions (Kunnskapsdepartementet, 2014). Lage et al. (2000) discussed the advantages of the 'inverted classroom'. Instead of giving lectures, instructions were recorded and made available to students to see at home or in computer labs, with class time used to do what traditionally had been assigned as homework. Thus students could watch and listen to the instructor at home, and do tasks with the instructor present, where they could talk and ask questions. This method, later termed flipped classroom (Baker, 2000; Bergman & Sams, 2012), has been very popular among teachers in secondary and upper secondary education. In the Norwegian Horizon Report (Johnson et al., 2013) the flipped classroom is viewed as one of four technology outlooks that will be adopted into Norwegian schools within one year or less (along with bring your own device (BYOD), cloud computing and social media). Yet some critics claim that flipping the classroom does not change the fundamentals of learning. Shelley Wright (2012) claims that a lecture is still a lecture regardless of given in class or on video.

## **Significance of the study**

Many argue today that students – called the net generation, digital natives and homo zappines – are learning differently compared to previous generations of learners, and thus require different approaches to learning and methodology. Others claim that this is a misconception. By asking students themselves about their expectations and experiences regarding learning and use of technology for learning we can get a better understanding of how they learn, the basis for their expectations, and their feed-back on various methods. This is especially relevant when it comes to the flipped model vs. traditional lecture. Advocates of the lecture emphasize the personal connection and communication that happens in the lecture hall, even though studies question the effectiveness of the lecture when it comes to learning (Freeman et al., 2014). It can be claimed that videos are non-personal, and over-rated as learning tools because of the non-personal format as compared to the interaction that happens in the lecture. The present study aimed to get a better understanding of how students experience change from traditional lecture to the flipped model.

The focus of the study was to answer three questions:

- What experiences and strategies do the students have prior to entering higher education when it comes to using technology for learning?
- What are their expectations of teaching and learning in higher education, with an emphasis on the use of/implementation of digital technology in their learning experience?
- How do the students react to and experience learning when taking part in the flipped classroom model?

## **Methodology**

In 2011-13 the project “Metodefag i fremtiden” (Learning math and statistics in the future) looked at how to implement digital technology in math teaching to improve student learning. The project initially ran three pilots: two pilots at the *Norwegian Business School* (BI) (one in the Oslo campus, one in Stavanger), and one pilot at Høyskolen Sør- Trøndelag – HIST (Sør-Trøndelag University College). Since results from the pilot in BI Stavanger were so interesting, an additional pilot was conducted at HiST. The classes at BI Oslo and HiST were maths; at BI Stavanger it was in statistics. Students at all campuses (BI Oslo, HiST Trondheim, BI Stavanger) were given use of video as a supplement to or replacement of the lecture. In the first pilot at BI Oslo and HiST, videos were supplements. In BI Stavanger all lectures were replaced by video. In the final pilot at HiST almost all lectures were replaced by video. In these two final pilots lecture time was replaced by work sessions with teacher assistance, as in the flipped classroom model.

As an additional study the project Student Voices was established, to see how students responded to these changes in teaching and learning. It was important to get both teachers’ and learners’ views on the change in methodology. During the study, students in involved classes were interviewed about their experiences and expectations. For the classes at BI Stavanger and HiST Trondheim most of students attended the interviews. These were classes of 40 – 50 students. For the class at BI Oslo a group of 20 out of 300 students attended the interviews. Apart for the group at BI Stavanger, students were interviewed once in a group. For the group in Stavanger they were interviewed twice, prior to the final exam. They completed both group and individual interviews. This group had more in-depth interviews because this class had the most extensive pilot. In this class all lectures were replaced with video, and in the lecture time the teacher was available for students who had questions. Interviews were conducted as conversations with the students, but with an interview guide. This was to get student voices and experiences without preconceptions interfering. In addition to these conversations with the students in the pilots, random groups of students at BI Campus Oslo were interviewed about their expectations and practice.

## **Findings and discussions**

It may look as students enter higher education with limited experience of learning strategies. They are used to “lecture pedagogy” – being lectured by the teacher and with limited use of

ICT. When asked about the use of ICT in education prior to entering higher education, they emphasized PowerPoint, Word and the Learning Management Systems (LMS). It seems like these tools were used as a one-way communication tool, from teacher to students. Some students used Dropbox for storing and sharing documents. Some used Facebook to organize collaboration in groups. This is, however, something they initiated on their own and not something they learned in school. As conversations progressed, students revealed more extensive use of digital tools than at first reported. As one student said at end of the interviews: "I am more digital than I realized". What the conversations revealed is that students' experiences with digital tools for learning are limited when it comes to their educational experiences. When it comes to their actual use of digital tool they are unaware of how much they actually use technology in their daily lives. All students reported using online video services like YouTube. Some used Khan Academy, some watched TED Talks, and some even reported having attended courses at Coursera.

The study findings indicate that when students enter higher education they have a conservative view on higher education. The lecture has a strong hold in their expectations. Students feel the lecture is safe and predictable, and important for creating interest and inspiration in subjects. The students rely heavily on teachers' advice. Even though there are many materials online, many students are reluctant to go and search for this content because they say there is so much content online and they don't know what is important or relevant for the exam. When asked about the use of video for learning, students who haven't experienced flipped learning say video is great as a supplement to the lecture but not as a replacement. They fear that by replacing the lecture with video the personal touch and communication will be lost. For a generation we know spends so much time on-line, they express fear of losing personal face-to-face aspects of their education.

For students who have been subject to flipped learning results differ somewhat from the answers from of other students. Prior to the pilot, they had the same preconceptions as the rest of the group. Students reported initial scepticism when the teacher in the first lecture announced that there would be no more lectures this term. When the students were asked how long this scepticism lasted one replied "one week, until I got the first video". After being comfortable with the video lecture method, the students did not miss the traditional face-to-face-lecture. In fact students pointed out a lot of advantages the videos had compared to lectures. The students themselves pointed out that now when they had the lecture on video they did not need to multitask, meaning taking notes and listening at the same time. In a lecture the teacher kept on talking while they were taking notes, and it was easy to miss some lecture content. They could not make the teacher stop while taking notes, nor ask her to repeat. When it came to the video they could stop while taking notes, rewind and repeat if something was unclear. While videos on average were 7-12 minutes, students reported spending on average one hour on each video due to this process. Most students saw the videos once, but some reported watching them more than once. They all reported that they would re-watch the videos before the exam.

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Students also reported it was easier to understand and remember content when they had videos. After the lecture they commuted, went to other lectures, to work or the gym and forgot much of the lecture content. They could watch videos at times of the days that were convenient. When asked about their study habits, some reported that videos were watched as part of a traditional study regimen, watched like they would do if they were to read a book. Others reported watching in more “untraditional” settings like in the commercial breaks on TV. Math teachers often complained that students don’t “talk” math. The students reported in the interviews that by having these videos, with both oral and written instructions, they got a better understanding due to the fact that the teacher talked math. It made it easier to comprehend the material. One student reported that she had taken this course previously at a different school and had a hard time to understand. Now she felt a different kind of mastery thanks to the oral instructions on the videos.

When it came to the fear of depersonalization of the campus experience due to the fact that the teacher was replaced by video, the students reported the opposite. They said that this teacher was the one they had the closest relation to. Because he did not lecture, but was available for dialogue and questions, they felt that they were more connected in this course than in the other more traditional lecture-based classes. The students liked the fact that it was the same person on the videos and in class. They were sceptical about videos made by other teachers. They showed a strong ownership regarding “their” teacher. When it came to complaints, they revolved around issues like not enough time with the lecturer, having to wait while he was busy with other students and having questions while watching the videos the teacher was not there to be asked. These issues led to the need for students to be disciplined and write down their questions. Still it was easier to ask questions in these “workshops” that had replaced the lecture, than in a lecture hall.

When it came to the issue of how much time the students spend on working with the material in the course, most of them reported that due to the structure, with the curriculum divided into video lectures, this was the course in which they spend the most time studying. One of the students, who liked the videos, complained that this structure took much time. His fellow students opposed this statement. They claimed that watching the videos, and taking notes, did not take more time than attending lectures, they did only spend their time differently. Also they were more focused while watching the videos, while in the lectures it was easier to lose attention.

An overall conclusion after speaking with the students is that they were very satisfied with this way of organizing their course. In the final interview right before the exam they expressed that they were not stressed out and in fear of having missed out of anything. They all reported that having these videos, and the structure of the course made them feel in control and empowered towards their own learning.

## Conclusions

From our findings we find three challenges for the current education system:

- The first challenge is that the students' expectations towards higher education is very colour by their prior experiences in K-13, and the existing models of higher education. If they don't have experiences from alternative models of teaching and learning, they make no demand for change when they enter higher education either. Even students who are used to alternative teaching, using technology for learning, don't think that this will be a part of higher education. This might be one of the reasons higher education don't experience a demand from students for pedagogical innovation using technology for learning. The students feel comfortable with the lecture model, it feels like a safe and predictable environment.
- The second challenge is the technological divide. All students reported high frequency use of technology for learning and communication in their private lives, and low frequency technological use while in education. It is difficult to get a grasp of how accurate this use is, because much of the student's technological use is "invisible" to them, and they don't connect it to their learning. When asked they agreed that they use a variety of tools for learning, they just did not connect it to learning when asked. This supports the theory of digital natives, and the fact that they use technology for a variety of uses without thinking of it.
- This points to the third challenge. Because the students today are so tech savvy, and they are used to change of habits. They easily adapt to new ways of teaching and learning when exposed to this. It turns out that when given the choice they prefer new models. Some of the students who had been taught though the flipped model were frustrated when they returned to the lecture model because they found the lecture model so disorganized.

Our findings show that the students are very much affected by how they have been taught in K-13 education, and that the expectations they have towards higher education is reflected by the traditional practice, more than their digital daily lives. But when you expose them to new ways of teaching and learning they quickly adapt to new use of technology and pedagogy. They like the flexibility given by video instructions, the feeling of control of the learning experience. Contrary to what many would expect this gives them a more personal learning experience than the traditional lecture.

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