Students' Perspectives on Learning with Tablets – A Case Study of a Norwegian Municipality

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Abstract

Digital technology has undeniably become more important in children's and young people's school life. In just a few years, the coverage rate of digital equipment has become very high, and 1:1 classroom is the new norm from elementary to high school. The paper's focus is students' perspectives on learning with tablets and is based on focus group interviews with students from different grade levels. The students see both advantages and disadvantages of receiving personal tablets from school. Some challenges are due to the tablet itself, while others are related to 1:1 issues in general. What is positive about tablets is, among other things, usability and a handy format that is easy to bring outside the classroom. The use of touch screens is also something most students are familiar with. In addition, tablets make tasks like photography and filming easier than with a PC. The main disadvantage of tablets is that they are not very suitable for writing longer texts — which is especially relevant for older students. In addition, the app version of essential tools does not work as well on tablets as on a PC. There are also general challenges with students always having access to their own devices: many play games, watch YouTube and do other things unrelated to school activities. The students in this study have three years of experience with 1:1 tablets, and their perspectives are useful for further research and practice development within the field of ICT in K-12 education.

Keywords: *Learning technologies, tablets, iPads, 1:1 classroom, K-12*

1. Introduction

During the last few years, many Norwegian schools have achieved full coverage of digital devices for students and have what is often referred to as a 1:1 classroom. According to the Directorate of Education statistics database, 89 percent of primary and secondary education students had access to a separate digital device from their school in 2020-2021. Among these, 40 percent had a learning tablet (iPad or other tablet), 21 percent a Chromebook, and 27 percent a laptop or Mac. Public schools in Norway are administered at a local level (i.e., municipality), whereas decisions on devices and digital infrastructure are made. The research was conducted in a mid-size municipality that had chosen iPad as a digital device with 1:1 coverage since February 2020. This paper addresses students' perspectives on learning with tablets (iPad).

A recent literature review looks at learning and learning outcomes with iPad and mobile technologies among students aged 9-14 [1]. Most of the studies found that the majority of both teachers and pupils were optimistic about the use of iPads in teaching. Some studies suggested that the iPad promotes collaborative learning, communication, and access to information. Other studies pointed to how the iPad could be a classroom distraction. There were mixed results regarding whether using the iPad positively affects the learning outcome in an academic sense (e.g., better grades). They identified several factors that are decisive for students' learning and learning outcomes: how the iPad is used in the classroom (the teacher's method), how to combine other methods and approaches with the use of the iPad (blended learning), and the level of students' and the teacher's digital competence. Some studies also highlighted the importance of adequate infrastructure, such as Wi-Fi, internet speed, charging, and managing apps. It is also crucial that the teacher has knowledge of these things and feels confident in the technical aspects of using the iPad. They also found several studies that addressed the potential negative consequences of using iPads and touch screens for children. For example, whether touching, pressing, swiping, and zooming come at the expense of fine motor skills, such as handwriting and drawing, and various physical skills. The concern is that the more use of screens in the classroom, the less time is left to do other physical and fine motor activities. Like most other studies of technology in schools, it is concluded that there is a need for

more research into the long-term consequences of the use of technology, particularly how the digital shift affects different age groups and their cognitive and motor skills. Many of the studies were so-called pilot studies of limited duration, and there needed to be longitudinal studies with an experimental design.

2. Method

Data for this paper was collected as part of a larger study where the researchers evaluated digital practices in all public schools in the case municipality (7 schools, students aged 6-16 years). The target groups for the main project were all teachers, assistants, principals, teacher's union leaders, ICT advisors, and students from four different levels. Data was collected using mixed methods design with a digital survey for teachers and assistants and interviews for the other target groups, including some teacher representatives. Focus group interviews are a suitable format when one wants views on experiences with something specific at group level [2]. In our case, we wanted to investigate students' experiences with tablets and other learning technologies. Two researchers were present during the interview; where one asked questions and led the discussion, while the other took notes. We started with a semi-structured interview guide, letting the informants answer freely and play off each other. Three of the interviews – with 7th, 8th, and 10th graders were conducted using Microsoft Teams - a platform that the students were already familiar with post-pandemic. The students participated as a physical group of 3-4 students, while the two researchers participated separately. In the case of the youngest ones - the 4th graders, the researchers were invited to participate physically in a lesson where they used iPads for different tasks. They had informal conversations with different students about their perspectives on using iPads there. Both interviews and in-class participation were conducted in June 2022.

Table 1: Distribution of Participating Students by Education Level, Grade, and Age

Education Level	Grade	Students' Age	Number of Students
Primary Education (1-7)	4. grade*	9-10 years	4
	7. grade	12-13 years	4
Lower Secondary Education (8-10)	8. grade	13-14 years	3
	10. grade	15-16 years	4

* In the 4th grade, we participated in class and observed practice. We had most of the conversations with four of the students, where parents had consented to this.

3. Findings

Students were asked to describe a typical learning session and how tablets are used (or not used) in this context. The daily usage of tablets mainly consisted of reading teachers' assignments in their LMS, surfing for online resources, and writing texts. The most frequently used apps were Microsoft Teams, Microsoft Word, and Safari (internet browser). They also mentioned other Microsoft apps like PowerPoint, Excel, Book Creator, and Kahoot. On some occasions, they did more creative things like building things in Minecraft, coding with Micro: bit, drawing mind maps and visuals in Kidspiration, and making videos in iMovie. Handouts and assignments were typically distributed in Microsoft Teams. The students used various internet sources to find relevant information to solve their assignments. The 7th graders emphasized that they also used textbooks and did take notes using pencils and paper. Observations and conversations with 4th graders gave an impression of more creative and diverse use of apps for the youngest compared to the other grades. The 10th graders had the least in-classroom experience with apps besides the traditional Microsoft Office Tools. One of the 10th graders said they had so many interesting apps on their tablets but had yet to be allowed to use most of them in a learning context. Also, that programming and such things is something the younger one learns, not the 10th graders.

Regarding writing styles, students from 7th grade said that in many courses, they could decide whether to use iPad or pencils and paper to take notes, while in some, they must take notes by hand. The 7th graders preferred taking notes on tablets rather than by hand when asked about their

personal preferences. However, they also preferred using an external keyboard before the touch screen. The 8th graders had similar preferences in tablet note-taking, but one felt that taking notes by hand was more helpful when practicing before a test. The 8th graders did mind writing with a touchpad compared to an external keyboard. The 10th graders mostly agreed with the other students about digital handwriting, but one preferred to take short notes by hand and longer texts on iPad. Keyboards where often handed out in assignments where they should write longer texts.

Rules for practices were internalized somewhat the same in all schools and grade levels. All students we interviewed, regardless of grade, mentioned that they had class rules of when to use or not use tablets. Teachers made commands like "tablets down" when they wanted the students to pay attention to other activities. Then, the students had to put their tablets at a visible point on their desks with the screen facing downwards. Nevertheless, students reflected upon their behavior while having their tablets up. They admitted that they sometimes used other web pages and apps that had nothing to do with their tasks and lessons. However, some also mentioned that the teacher had an app called Classroom, where she could monitor the students' use and even close Wi-Fi access if necessary. However, most teachers did not seem to use this app or possibility.

Students were asked what their preferred digital device in school would be if they could choose. The 10th graders would have chosen a PC before an iPad if they had the option. This is because they felt that their most essential apps, i.e., Word and Excel, worked better on a PC. However, they said the iPad was more portable and easier for filming and taking pictures. The 10th graders also felt that a PC is more relevant in transitioning to upper secondary and higher education, while the 7th and 8th graders preferred to continue with tablets. Several students wished they could have their private portable keyboard and a headset from school. In the current situation, the teacher had to bring a set of keyboards and headsets if the students had tasks where it was necessary. This equipment was not always available as they had to share it with other classes in school. Another area for improvement was storage capacity and battery, as they had used the iPad for two to three years.

4. Discussion and conclusion

The students see both advantages and disadvantages of receiving personal tablets from school. Some challenges are due to the tablet (iPad) itself, while others are related to 1:1 issues in general. What is positive about tablets is, among other things, usability and a handy format that is easy to bring outside the classroom. The tablets have many apps that enable students to work more creatively in subjects such as Book Creator, Kidspiration, and iMovie - with the proviso that the teachers use these in teaching. The use of touch screens is also something most students are familiar with. Tablets make tasks like photography and filming easier than with a PC. However, access to 1:1, regardless of which device, promotes student collaboration [3]. The main disadvantage of tablets is that they are not particularly suitable for composing longer texts, which is especially relevant for older students. Additionally, the tablet versions of familiar tools such as Word and Excel do not perform as effectively as they do on a traditional PC. Students are divided when it comes to writing. According to a literature review on tablets one third of students prefer to write by hand, one third prefer PC, while the last third prefer iPad [4]. Among this last third, several states they want an external keyboard for the tablet. Most students in our study preferred to write on an external keyboard when using the iPad. Some also chose handwriting in specific situations.

Several of the oldest students felt that they did not use iPad as a creative tool, merely as a notepad and a search engine, with limited use of all the available apps. The students overall had access to (too) many apps that they never had the chance to use in a learning context. If this was because of the teacher's preferences or lack of familiarity with the apps is not sure. Regardless of the reason, this is something that the schools and municipalities should investigate. Too many unused apps can affect students' motivation and self-control and promote digital disturbance and non-academic use. There are also general challenges with students always having access to their own devices: many play games, watch YouTube, and do other things unrelated to school activities. However, challenges with too much screen use during free time and distractions in the classroom can be solved by focusing on class management, as well as guidance for students and parents [1].

Students addressed some disadvantages of using tablets compared to PCs: The screen size is small and not so well suited for longer typing sessions. Tablets lack keyboards, so the students have to write on the touch screen or borrow a class set of portable keyboards. Some essential apps used frequently at higher levels have limited functionality in the tablet version, including Word, Excel,

and GeoGebra. Several disadvantages are not due to choosing a tablet but rather to the fact that each student has their own device, which is getting old. Problems with battery capacity and storage are solved by acquiring new devices with a larger capacity. These problems and challenges must be solved at the municipality level by regularly renewing the devices and equipment. The fact that the teacher feels confident in the technical aspects of using the iPad is a prerequisite for facilitating a good learning outcome when using the iPad. [1]. Also, students should be trained to use their available cloud-based storage site more properly than saving their work locally on their device.

The students included in this study have gained three years of practical experience with 1:1 tablets. Their valuable insights hold practical significance for future research and the enhancement of teaching practices in the field of ICT in K-12 education.

References

[1] Boon, H., Boon, L. & Bartle, T. (2020). Does iPad use support learning in students aged 9–14 years? A systematic review. The Australian Educational Researcher. 48. 1-17.

[2] Masadeh, M. A. (2012). Focus Group: Reviews and Practices. International Journal of Applied Science and Technology, Vol. 2 Issue 10.

[3] Harper, B. & Milman, N. B. (2016). One-to-One Technology in K–12 Classrooms: A Review of the Literature From 2004 Through 2014. Journal of Research on Technology in Education. 48(2) 129-142.

[4] Mulet, J., van de Leemput, C. & Amadieu, F. (2019). A Critical Literature Review of Perceptions of Tablets for Learning in Primary and Secondary Schools. Educational Psychology Review, (2019) 31:631-662.