This is the published version of a chapter published in *Engaging with Educational Space: Visualizing Spaces of Teaching and Learning*.

Permanent link to this version:
http://urn.kb.se/resolve?urn=urn:nbn:se:umu:diva-96355

THE COMPUTERISED CLASSROOM: DIDACTIC TOOL OR DISTRACTION?

Karin Sandberg

Computers and smartphones have irrevocably changed Swedish schools. Computers have been brought into the classrooms on a large scale and many schools are now considered so-called "one-to-one" schools, with a personal computer for each and every pupil and teacher. This case study aims to provide insight into how the comings of computers have altered the function and environment of the classroom. I have shown

Figure 1. *The physical alteration of the classroom.*
Photo: Karin Sandberg (2012).

pictures of their former school to seven students who left school a few years ago. They were asked to reflect upon how the computers have changed their old classrooms as educational spaces. My instructions however must have been unclear, or simply overlooked, since they all responded in an unforeseen manner, discussing the role of computers in school in general. Even so, their remarks are interesting and contain many perspectives not commonly expressed in the debate about computerisation.

Educational Spaces

Space is more than a backdrop for our daily comings and goings, it is something we create both in social interaction and in interaction with the space itself. Space both forms us and is formed by us. Therefore space is always in an ongoing state of

130

flux.[150] We who spend so many of our waking hours in the class-room are ultimately the ones who decide how computers affect the classroom environment.[151] But what happens in the class-room does not remain uninfluenced by what happens outside the classroom. Educational space is affected both directly by political decisions and indirectly by social, financial and other miscellaneous events.[152] The walls are not the boundaries of the classroom, even less so with access to Internet, which contains learning environments customised to meet student needs and other websites that contain heaps and heaps of information, for better or for worse. The educational space has expanded to include the entire Internet. This brief text is an attempt to address the still unanswered question of how computers have altered the classroom.

Figure 2. *Class with computers: One computer each for the students and one for the teacher.* Photo: Karin Sandberg (2012).

Computers in the Classroom

In recent years, Swedish schools underwent a swift, more or less wholesale computerisation. Today almost all students attending

150 McGregor (2003), 354.

151 Martin Lawn, "Designing Teaching: The Classroom as a Technology," Grosvenor, Lawn and Rousmaniere (1999), 66.

152 McGregor (2003), 355.

upper secondary schools are provided with their own computer.[153] So what are the supposed advantages of this development?

In his book *Oversold and Underused*, Larry Cuban writes that computers in the classroom are believed to have a three-step impact on teaching and learning and on society. More computers in the classroom would mean an increased use of computers; increased use of computers would lead to better and more efficient teaching and learning (exactly how is not specified); and better teaching and learning would lead to better and more skilled workers, tailor-made for computer-based society.[154] Another benefit bestowed by computers would be that teaching and learning would become more engaging and more in contact with real life, since traditional forms of teaching were not believed to be in touch with the information age. Pupils must be prepared for a future filled with computers and information technologies.[155] So the argument in favour of computers is there, but how have they actually affected classrooms?

In this case study, former students were asked to reflect upon how their old school has changed. I have shown them pictures of their old classroom and the main hall. The furnishings and the curtains are the same. The only thing that has changed is the addition of computers. How do they think this has affected their old school?

The Photographs

The photos have been taken at the school where I work and my informants formerly attended. The pupils in the pictures are current members of the student body. Three pictures attempt to capture the use of computers and smartphones in the classroom during a history class, another shows a detail of the classroom and a third the main hall of the school. By showing them to former students, I hoped to access their immediate response to the pictures. I also hoped that showing them pictures of

153 Mattias Davidson, 'En till en kartan' Blog entry on *Datorn i skolan, pryl eller verktyg* http://skoldator.blogspot.se/p/entillenkartan.html (accessed 2013-06-12).

154 Larry Cuban, *Oversold and Underused: Computers in the Classroom* (Harvard 2003), 18, 34.

155 Cuban (2003), 14–15

their old school (rather than an anonymous one) would elicit a more direct, visceral reaction to how their school had changed.[156]

The pupils in the pictures are sixteen years old and have been attending upper secondary school for three months. They all have laptops provided by the school and this is their first year with individual computers. The pupils have consented to being photographed and I have tried to avoid showing their faces.

Figure 3. *Working with computers in the classroom.*
Photo: Karin Sandberg (2012).

The Informants

A number of former students were chosen at random and asked to participate in the study. Seven agreed. Six were born in 1990, one in 1989 and all left school four years ago, before the school began providing every pupil with his or her own computer. All were interviewed by e-mail, since they now live spread across the country and abroad. In the material, they will be referred to by pseudonyms beginning with the letters A to G.

Two of the students had had their own private laptop while attending upper secondary school, while the rest had access to computer labs. The informants were asked to give their first, spontaneous response to the images. I also asked them to compare what they saw in the pictures with their own time in upper secondary school. My instructions were to provide one response for each individual picture but my instructions must have been unclear because all of them provided a single response to all five pictures together. As mentioned above, the respondents did not respond as I expected either, mainly discussing computers in school in general rather than the classroom environment *per se*. Nevertheless, it is possible to glean quite a bit of information about the role of the computer in the classroom and how educational space has been affected by their ar-

---

156 Schratz and Steiner-Löffler (1998), 236.

rival from their responses. The informant's answers varied greatly, both in length and in content. I have divided the answers into four themes; since some answers were much shorter than others, not all responders are represented in all categories.

Theme One: Old and New Technology

On the whole, the former students were mostly negative, not to computers in school as such, but to the one-to-one system in general. However, their answers were far from unambiguous. One of the informants, Dahlia, has grave dyslexia and she states that she would simply not have made it through upper secondary school without a computer of her own, especially the spelling check programmes. She was positive to computers in school, especially for pupils with some form of learning disability. Another student, George, emphasised the ability to write faster as a positive aspect of computers in classrooms. Frank says that when he writes on a computer, the information doesn't stick in his mind as well as when he writes by hand. He also thinks that kids in today's society are not as good at writing as they used to be. Beatrice says that when she went to school, pupils wrote by hand and talked a lot with each other about their assignments, which she thought was good for their learning.

The positive comments concern the technological side of computers; computers support the learning process, especially for students with learning disabilities, and help the students to write faster. However there is a fear that they will never acquire adequate handwriting skills and that they will not discuss and solve assignments together when they have access to the Internet.

Another informant, Cecilia, had just one comment on the pictures; she was unequivocally positive to computers in school. She said that she is positive to computers in general, since her father is a computer engineer and she grew up around computers. Cecilia's reflection was that computers in school are a source of relaxation and easy to use. Cecilia's comment that computers are relaxing is more about the social side of computers; they provide a way of escaping the classroom.

Figure 4. *The atrium of the school: Students gathering around a computer.*
Photo: Karin Sandberg (2012).

Theme two: Facebook, Twitter, Instagram and Other Distractions

One informant, Anne, stood out in the responses since she was clearly against the one-to-one system in schools, while the others were more or less positive with certain reservations. All the informants now took computers in school for granted, the issue was whether each pupil should have his or her own computer or not. Anne argued that computers were a distraction, since pupils should listen to the teachers and not be absorbed by their computers during lessons. She thinks it is better for them to use the computer lab, where they will be more focused, instead of having full-time access. She had heard from younger friends that pupils visit Facebook and play games during lessons. George thinks the whole idea of giving pupils computers is misguided. He says they will get stuck surfing and not do their schoolwork. Beatrice says, referring to the former students, that they did what they were instructed to do and did not waste their time surfing for amusement. Facebook did not exist when they attended school and little time was spent surfing the net. George thinks pupils will socialise via computers, not with

each other. He takes Figure 4 as a proof of his argument.

Anne takes up the social change computers wrought, a shift in the teacher-pupil relationship. A possible threat to their authority, the teacher-textbook monopoly on knowledge can be broken. Former students often referred to the texts selected by their teachers. Moreover, the teacher now needs to constantly compete for the students' attention. John K. Lee points out that the Internet represents a new opportunity for students to access source material, find books and create their own historical view of different events, instead of having to rely on teachers and textbooks.[157] Digitised archives available on the Internet means that they do not have to be visited physically, which saves students and researchers time and effort and protects the documents from wear.[158] With the Internet, students can benefit from other people's research and disseminate their own.[159]

Anne also questioned the rationale of giving computers to pupils at a huge cost while the school needs renovation and teachers earn so little. She says she has heard from younger friends that computers are mistreated (by "spoiled children," as she puts it), since they are on loan (the computers reverting to the school after graduation). If one broke, it had to immediately be replaced, at a significant cost to the school.

Anne sees no benefit whatsoever in computers in the classroom. She believes we are heading for a future where pupils don't have to attend school at all; they will sit at home and study via the Internet instead. Cecilia says that it is impossible to say if the one-to-one system is good or bad. As society on the whole becomes more and more computer-centric, we cannot yet say what the outcome will be.

---

157 John K Lee, "Digital history in the history/social studies classroom," *The History Teacher*, 35 (4), 2002.
See also Bing Pan, Helene Hembrooke, Thorsten Joachims, Lori Lorgo, Geri Gay and Laura Granka, "In Google We Trust: Users' Decisions on Rank, Position, and Relevance," *Journal of Computer-Mediated Communication*, 12 (3), 2007.

158 Lee (2002).

159 Stéphane Lévesque, "Discovering the Past: Engaging Canadian Students in Digital History," *Canadian Social Studies* 40 (1), Summer 2006.

Theme Three: Information Overload

In their responses, the informants tend to conflate the terms "Internet" and "computers". When they speak of computers, they are speaking about the Internet. The same can be said for the schools themselves. Wireless Internet is standard in one-to-one schools. One informant says that she and her classmates were unskilled at searching for information on the Internet; they just used Wikipedia and looked up web sites at random. On the positive side, George concedes that computers made it fast and easy to find information and cause less paper consumption. Roy Rosenzweig argues that if we take Internet as a whole, the information that is found there is correct and accurate.[160] Since the number of websites is so enormous, there will of course be sites that are terribly wrong and some that are as good as or better than most encyclopedias and other scholarly works.[161] We also have the opportunity to partake of new academic results and debates, an opportunity we did not have before.

Beatrice thinks that computers served as a good complement when she was at school, but now they have a much bigger role in society as a whole. Dahlia says the same thing and concludes that it remains to be seen if our increasing dependency on computers will have a negative or positive effect.

Theme Four: Information and Technology Stress

Five out of seven responders mention "information stress" as one of the downsides of computers in classrooms. Cecilia wonders if school should perhaps be a sanctuary from the flood of information with which we are confronted every day. Ellinore thinks the students' ability to concentrate and focus on one thing is lessened if they use computers all the time. She also brings up bullying and social isolation as phenomena that will only increase when all pupils have their own computer and constant Internet access. As Martin Lawn writes, computers are part of both the pedagogical and the social side of school, since

---

160 Roy Rosenzweig, *Clio Wired: The Future of the Past in the Digital Age* (Colombia University Press 2011), 31.
161 Cuban (2003), 30.

pupils spend much of the latter on the web. How computers are used is also a social process, carried out between teacher and pupils and between the pupils themselves.[162]

Final Comments: Computers and the Grammar of Schooling

Computers have only very recently made their entry into the classroom; so far, classrooms have not been significantly altered to accommodate them. But a change in the classroom environment has certainly occurred. Pupils still sit in rows facing the teacher and the whiteboard, classrooms still look exactly like they are "suppose" to look.[163] But now a computer screen is placed between the student and the teacher. The fears that my informants list are mainly that pupils will suffer stress caused by all the information on Facebook, Twitter etc., and that they will lose valuable learning time when they get stuck surfing or playing games. Only Beatrice brings up the concern expressed by most scholars about pupils' lack of source criticism.

To summarise, the greatest change mentioned by my informants is thus social. Computers have altered traditional classroom routine as regards to its social facets and also how pupils interact with each other and people outside the school on the Internet. However, when it comes to teaching and learning techniques, this is still perceived to be conducted in the traditional way and none of my informants even as much as suggested that computers could be used for something other than reading, writing and gathering information. My informants were mostly negative to the one-to-one system in schools, fearing pupils would waste time amusement surfing, having a hard time concentrating on their lessons when the net was only a

Figure 5. *Many of the informants mention "information stress".* Photo: Karin Sandberg (2012).

162 Lawn (1999), 68.

163 Grosvenor, Lawn, Nóovoa, Rousmaniere and Smaller (2004), 320.

mouse click away. But no one wanted to remove computers from school. They are now so fully integrated in schools we cannot imagine school without them.