ICT-enabled innovation in technology rich schools?

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Abstract

This article takes its point of departure from the main findings from research into four upper secondary schools that have implemented digital technology through one-to-one laptop initiatives. Various data sources have been used in order to identify and understand how teaching and learning are organised and the reasons why and how digital technologies are used in educational settings. This is a response to a demand for more knowledge regarding the ways in which desirable changes of education can be realised and the potential role of educational technology this process. The conclusion drawn is that fundamental transformations in education are less concerned with technology and have more to do with changing structures and discourses regarding teaching, learning and education.

Introduction

In Sweden as in many other countries, an increasing number of education districts are investing in 1:1 laptop initiatives as a means of pushing the integration of Information and Communication Technology (ICT) in schools. This integration has been accompanied by a national debate in which information and communication technology (ICT) is often singled out as a key enabler for bringing about the necessary fundamental innovation and modernisation of education and training which is required for nations to remain competitive in the globalised economy (Bocconi, Kampylis, & Punie, 2013; Nivala, 2009; Player-Koro, 2012d). This debate also involves ideas about the development of educational processes with measurable outcomes both for stakeholder satisfaction and educational performance assessment; both these aspects are stressed and ICT is described as playing a crucial role for these developments and of new ways of using and creating information and knowledge (Bocconi et al., 2013; OECD, 2013). Whereas these innovative practices are seen as necessary for the development of society, traditional practices are considered to be obsolete and resulting in societies being left behind in the global competition (OECD, 2013).

ICT discourse

The prevalent strong belief in technology as a means of fostering and driving innovation in education, industry and beyond is a compelling discourse that brings together several other underlying discourses in current society. One of these emanates from a techno positivist assumption that has its roots in the industrial revolution. This discourse follows a logical argument in which it is assumed that the introduction of technology is bound to have an impact and that the potential exists to transform social settings (Fisher, 2006). In this so-called technology-optimist perspective, the focus on technology and transformation is central and the diffusion of innovations is held to be the main factor determining changes in organisations or practices (Ende & Dolfsma, 2005; Jagodic, Courvisanos, & Yearwood, 2009). It is assumed that the spread of innovation in a social system can be viewed as a *development process* based on the quotidian activities of the those who participate in that system, which will also be enhanced by the introduction of new technologies (Ende & Dolfsma, 2005; Jagodic et al., 2009).

Literature in which technology or ICT is assumed to be an enabler for innovation of teaching learning and education shares these premises as exemplified recently by Kampylis et al's (2012) proposed framework for mapping ICT-enabled innovation for learning. This framework maps ICT initiatives across five categories that are presumed to be following an evolutionary trajectory towards an innovated learning environment. The model was used to analyse 1:1 initiatives in Europe. The conclusion, in line with three decades of research in the area of educational use of technology,(Balanskat, Bannister, Hertz, Sigillò, & Vuorikari, 2013; Dunleavy, Dexter, & Heinecke, 2007; Goodwin, 2011; Larkin, 2011; Tallvid, 2010) was that:

- ICT was not enough to bring about transformative changes to education
- 1:1 teaching and learning could not yet be viewed as a high impact innovation (Bocconi et al., 2013; Kampylis, Bocconi, & Punie, 2012)
- Instructional use of ICT per se will not transform teaching and learning or improve students academic achievements (Livingstone, 2011; Skolverket, 2013; Yuan-Hsuan, Waxman, Jiun-Yu, Michko, & Lin, 2013)

The present investigation

In the present investigation our point of departure is previous research, such as described above in order to contribute with an analysis of the different and often competing demands and traditions that restricts teachers' structuration of their pedagogical practices with ICT. We have used several different data sources for this analysis, including survey results, interview transcripts and observational field-notes as well as protocol from participant observation research. The roles played by these data differ slightly. The former have provided a more general picture of the teachers' structuration of their pedagogical work in classrooms and their use of ICT that we then attempted to illustrate in greater detail and deepening through conversation and reflection from a theoretical position where activities in classrooms are viewed as structured by many different and often competing discourses (Bernstein, 2000). This framework allows for an analysis of how pedagogic discourse is structured in conjunction with the infusion of intentionally transformative innovations such as 1:1 initiatives and what discourses have the greatest impact on classroom activities. The aim is to contribute to a discussion about how education can be transformed so as to allow students to acquire the necessary knowledge to meet today and tomorrow's society. The following questions were given special attention:

- What teaching and learning patterns can be found in technology rich educational practices?
- What discourses appear to structure educational practices in conjunction with the infusion of 1 to-1 initiative?

Theoretical framework

This research belongs to a theoretical tradition in which schools and classrooms are not reduced to transmission systems or mere sites of 'learning transfer'. Instead, what happens in teaching situations is considered to be the outcome of struggles between different agents and discourses engaged in processes of social inclusion and control — both inside and outside the immediate educational setting in a world made up of a complex and shifting meld of values, ideas and interpretations, in which discourses of legitimate knowledge and skills, together with rules for their transmission and acquisition are constructed (Ball, 2006; Dennis Beach, 2005; Bernstein, 2000). For this study this means that finding out how and why ICT is being used in education and how this use (or non-use) is valued is about understanding how digital tools are negotiated and shaped by different agents with different interests who are also present both *inside* and *outside* the educational institutions. Bernstein's concept of the pedagogic device serves as a conceptual framework for describing this process. The idea of the pedagogic device is to describe how the content and practice of education and teaching — the *pedagogic discourse* — is formed through struggles and power relations between different agents.

The components of the pedagogic discourse are twofold, namely *the instructional discourse*, which creates skills of different kind that are embedded within *the regulative discourse* that creates order, relations and identity (Bernstein, 2000). Viewed through the theoretical lens of the pedagogic discourse classrooms are contextual (situated) sites for teaching and learning where competing translations and interpretations of ideal practices and how and what to teach in different subjects shape the classification and framing of everyday school work (Dennis Beach, 2005). Thus the pedagogic discourse is realised and made visible through activities in the classroom and has its roots in the modality of the social relations of actual classroom practices, such as in the selection of subject content and establishing rules for the transmission and acquisition of knowledge and skills (Bernstein, 2000; Player-Koro, 2012a).

The process of *recontextualisation* is a further significant concept for this study (Bernstein 2000). It refers to the process that constitutes specific pedagogic discourses and it takes place in two different arenas or fields — the official recontextualising field (ORF) and the pedagogical recontextualising field (PRF). The state and its selected agents and ministries dominate the ORF through political discussions amongst politicians and bureaucrats together with discourses derived from the public and media debate and selected agents (politically chosen representatives). Significantly in this case, discourses about 'ICT-enabled innovative learning' are included in this process (Bernstein, 2000). The PRF consists agents from the educational field, of pedagogues in schools and universities, departments of education, and writers of textbooks, specialist journals and research foundations etc.

Methodology

Empirical material has been produced for the present article through two years of participant observation studies within the school context in four upper secondary schools in a municipality that has invested in new technologies

through a 1:1 initiative. It includes multiple data collection formats. These have comprised two online surveys (distributed in 2012 and 2013) addressed to directed to all teachers working in the schools in question, semi-structured group interviews with school principals at each school, semi-structured focus groups meetings with two groups of teachers in each school (8 groups consisting of 3-5 participants), direct observational field-work (two to three days each month during one year), and video observations from everyday work in classrooms where digital technology is used for teaching and learning (6 lessons of approximately 1 hour each).

The different data have contributed to the investigation and hence the article in a number of ways. The general influence of the digitization of school on teachers' pedagogical work has been studied through the online survey and the outcomes were then analysed by using statistical methods, supported by SPSS, while focus group meetings were used to generate deeper 'in-depth' discussions on a specific topic defined by the researcher, often on the basis of a survey finding or ideas derived from observational protocol. The researcher acted as moderator of the discussion (Breen 2006). We found this method particularly helpful because it allowed for reflection on the social realities through direct access to the language and concepts which structures experiences from the perspectives of the participants (McLafferty, 2004). The conversation was grounded in a perspective where the implementation of digital technology was viewed as part of a complex reality navigated by teachers. The conversation was documented using a digital sound recorder and by taking field-notes.

Participant and direct observational fieldwork were for us the most central method. Derived from ethnographic research and anthropology, in its original sense participant observation is a means of experience and learning based on attentional and intentional observational action. It is conducted in order to document and learn from the experience of sharing in life with others and observing the on-going work in these activities, in this case in the schools in question and in the educational practices in their classrooms. Observations inside the classrooms concerned primarily the effects of digital technology on the teaching process in particular, the interaction between students and teachers in the classroom. The fieldwork was documented using a video recorder (in some cases) and by taking field-notes. Interviews and observations have been transcribed and analysed.

These multiple data collection formats were used in order to provide both a broad and more general picture as well to allow for a more profound and deep understanding of how the teachers' pedagogical work is influenced by the digitization of school. It has therefore been possible to drive an analysis through analytical juxtaposition, in which the survey results have been reflected on in relation to both the analysis of interviews and observations and in relation to theory. The various data sources have provided a rich picture of both the daily teaching and learning as well as of the context surrounding teaching at the local schools under study.

During the project period the time spent in the municipality varied in frequency and could also be described as having different aims and objectives. These different ways of using time have been described by Jeffrey and Troman (2004) as compressed and selective time modes. Compressed time modes involve shorter recurrent periods of two to three days of more intense research periods. This was done mainly during the first year of the project. Selective time modes operate with particular foci in order to examine and interpret specific events (Jeffrey & Troman, 2004). One example where this sampling was used is analysed in this paper. This was a selection of classrooms made by the principals of each school based on the criteria that the teachers /in these classrooms were regarded as particularly innovative in their use of digital

technology in education (see below). These classrooms were selected and studied using video-recordings and field-notes with a focus on the effects of digital technology on the teaching process and the interaction between students and teachers.

Results

This section starts with a brief discussion of survey results from the investigation and a presentation of the general picture emerges from the compilation and analyses of this survey. These results will also be illustrated with citations from the interpretation and analysis of focus group meetings with groups and interviews with teachers and from the classrooms-observations, in order to give meaning to, and improve the understanding of, what is expressed and reflected through the responses in the survey. The results are discussed in relation to the first research question about what learning patterns can be found in technology rich educational practices. The second research question concerning the discourses that appear to structure educational practices in conjunction with the introduction of 1:1 initiative is discussed in relation to a theoretical analysis of interviews and classroom observations.

What teaching and learning patterns can be where extensive use of technology is made?

The survey was sent twice (in 2012 and 2013) to all teachers working in the four secondary schools in the municipality. The aim was to provide a picture of how the pedagogical work of teachers was influenced by the digitalisation of the school. The results did not differ significantly between the two years. In this paper we refer to the 2013 survey.

In 2013 the on-line questionnaire was sent to 352 teachers, 276 of who returned their completed version (147 woman and 129 men). A relatively large number of issues were covered through 40 questions in 9 sections. We asked standard questions about teachers' professional development, school improvement, assistance and support, and more specific questions about the teacher's use of digital tools in teaching, their attitudes towards the use of digital tools in teaching, the skill necessary to support students in their use of digital technologies and changes in the teacher's work due to the introduction of digital technology.

The 2013 questionnaire was mostly constructed with fixed interval items where the respondents were asked to express agreement or disagreement with a series of statements. They also had the opportunity to add their own comments in their own words in a number of open-ended questions. When designing the questions we made sure we adhered basic psychometric standards in order to avoid the risk of answers to individual questions being prone to standard errors, such as the ability to interpret a question differently. The results showed that 201 out of 239 (84%) responding teachers used ICT more than once a week in their teaching and 40% used ICT on a daily basis, whilst 4% never used ICT. It was obvious from all our data (surveys, focus groups interviews etc.) that teachers had acquired a new tool for communication.

That ICT was integrated as a tool in the teachers' everyday work was also evident in dialogue between teachers during focus group interviews.

> ... yes ... now it is natural to use the computer ... I have everything on it ...
> ... all you have to do is bring it (focus group interview 2012-06-19)

> ... everything has changed drastically ... the computer is second-nature natural now ... whereas it wasn't before... you had to book a computer lab and all that......(focus group interview 2012-06-12)

The most common way of using ICT in classrooms was for looking up and retrieving information. According to 82% of the teachers computers were used for information seeking and 70% said that computers were used for retrieval of information in their teaching more than once a week. The citation below illustrates this.

> ... the world has become closer ... it's very easy for students to listen to things and find interesting texts ... (focus group interview 2012-06-14)

The second most common way of using ICT was for text production. 68% stated that the computers were used for this purpose in their classroom at least once a week. A similar pattern was found for all categories of teachers, with the exception of physical education teachers.

The survey data also provided evidence that teachers used digital spaces as an arena to collect, share and disseminate information between teachers and students through the learning management system (LMS). The view of ICT as part of the infrastructure for organizing teaching and training was also evident in focus group interviews and observations. In this respect the LMS system was especially important.

> I don't–think that education has changed pedagogically ... but it is a tremendous gain in communication ... students can retrieve articles from the Internet or go to any Twitter account and tweet directly with politicians for example... it's a big change ... but not pedagogically... but the ICT certainly provides more tools for communication (focus group interview 2012-06-14).

> ... I no longer [have to] make photocopies for students ... I just put everything on the learning platform (focus group interview 2012-06-19)

The survey also contained questions with aim of which was to establish, exactly, how teaching methods and the organisation of work in the classroom were affected when the school was digitized. In order to find this out, questions were posed about the teaching methods teachers used both when ICT was part of their teaching and when they were not used. In both cases, the results showed that teaching from the front of the classroom was the most common way of organising the lessons. 23 % responded that teaching from the front was used in more than 50 % of their teaching time and 61 % responded that this way of organising classroom work occurred in at least 30 % of their teaching time. A similar patter emerged when teachers were asked about how they organised the work in classrooms while using ICT. The observation protocol reflects similar patterns. Teaching from the front of the classroom was the most common way of organizing lessons both in the absence of ICT and where ICT was intentionally intensive (Player-Koro, 2012). This way of regionalising classroom spaces and interactions has been found to figure regularly alongside expressions from teachers that clearly related their practices and professional value statements to a traditionally teacher centered pedagogy (Beach, 1995, 2000, 2008).
The second most common way of organising classroom work was as individual task based activities. 46 % responded that this kind of classroom work occurred during at least 30 % of their time spent in classrooms, and a similar pattern emerged when teachers used ICT as part of their teaching. This pattern has also been noted by us in earlier ethnographic work (Dennis Beach, 1995; Player-Koro, 2012a). Focus group discussions with teachers confirm these results. However, what teachers do within these forms of front-on work has

been changed through the use of ICT. Citations from focus group interviews serve to illustrate this:

> Teaching is no different ... I stand at the board... Before I had an overhead projector whereas now I use PowerPoint. The difference is in communication: whereas before the students left their exams in my box, now they submit them through the computer ... it's the same thing ... the advantage is that the students and I can find the latest information on the web ... I use the computer all the time ... I wouldn't-be without it...(focus group interview 2012-06-14)

> ... yes a change is that I can stream the movie ... I do not have to order it as I used to have to do (focus group interview 2012-06-12)

> ... I don't-think the computer has replaced anything ... it is a supplement ... I do not have much use for it in mathematics (focus group interview 2012-06-12)

Taken together and in relation to the research question concerning the teaching and learning patterns that are evident in technology rich educational practices the results show that:

- The 1:1 initiative has resulted in a high frequency of use of ICT in classrooms
- ICT is an integrated tool for teaching
- ICT is a component of a digital infrastructure that is used for the organisation of the education.
- The learning platform is a key component of this.
- In teaching ICT is primarily used for text production, communication, and information retrieval.
- ICT has affected the working methods and work in the classroom, but teaching is organized primarily according to traditional patterns
- The power centric relations of space in the classroom have not been reconfigured
- The modality of education does not seem to have been affected significantly in terms of classification, framing rules or pedagogic discourse

In summary, one can say that the results from the different data sources run contrary to the repeated prediction about an innovative transformation of education through the use of technology. The results reinforce instead previous studies and evaluations whose main interest was to evaluate or find out how technology is actually perceived and used (Balanskat et al., 2013). Overall the studies have repeatedly shown a considerable lack of evidence regarding transformation or enhancements of educational standards.

Sometimes the explanation for the failure or absence of IT impact is to point to the teacher as the major hindrance to the successful implementation of technology in schools (Drent & Meelissen, 2008). However, this cannot be said to apply in the present case, as in this research most of the teachers had a positive attitude toward technology and found it useful for managing their professional work, even if their view of teaching was somewhat traditional organised. Thus an important point for us in this respect-is to stress that these findings should not be regarded as failures. Instead, the use of technology should–be analysed and understood in the context where it appears and in relation to the complex web of policy demands and the different expectations and requirements which teachers are obliged to take into consideration; teachers are compelled to work within such constraints and this limits/affects what they can do (Ball, 1993). We will look more closely at this in what follows.

What discourses appear to structure educational practices in conjunction with the adoption of 1 to-1 initiative?

In the focus group meetings teachers discussed how they planned and organized their teaching and what shaped and steered their work. In this discussion, it was mainly the new curriculum for upper secondary school (Skolverket, 2011) together with the increasing demands made by national tests that teachers mentioned. The citation below illustrates this:

> ... the new upper secondary school reform has affected us a lot ... before we were able to work in an interdisciplinary way and we were divided into multidisciplinary teams working with the same students... it was easier to use computers ... whereas now we are back in the subject divided teams and [so] we mostly use computers to share material on the learning platform ...

The above citation illustrates how the new curriculum seems to be conducive to a more for a more traditional way of working in schools. The next two citations illustrate how performative demands from national testing tends to structure the formation of the pedagogic discourse:

> [Of course] I have to prepare my students for national tests... [that's true]. I work ... straight or completely with that in mathematics. These tests very much affect the way I teach maths... my teaching is guided by the national tests ...(focus group interview 2012-06-14)

> ... they're not allowed to /use computers in national tests ... they have to write by hand in the test... so we were unable to use computers and work with texts on the computer. We have to write with pens in the lesson as well (focus group interview 2012-06-12)

The first citation indicates the way teaching is focused on preparing students for the national tests. The last citation exemplifies how it is national testing rather than the use of technology that steers teachers. Taken together the two citations provide an example of issues that were brought forward by the teachers concerning how educational policy is related to the formation of the pedagogic discourse. An interesting consideration in this respect is that it seemed as if the recontextualising of policy documents from the ORF, the field for policy production, prevented teachers from both innovative transformations of their teaching and to the implementation of ICT in their pedagogical practice (Singh, Thomas, & Harris, 2013). This result was confirmed in classroom observations. The classrooms to be observed were selected by principals of each school based on the criteria that their teachers were particularly innovative in their use of ICT. However, this was not immediately evident in observational protocol. On the contrary, these classrooms shared the same traditionally teacher centered pedagogy discussed above while teaching and learning were discussed as being structured by the same kinds of performative demands in relation to forthcoming examinations. The citation below is taken from observations from a civic education class where students were working individually on a report. The tool used for seeking information and writing the report was the computer.

> Teacher:... you have to include the country's economic and political development in the report if you want to pass the exam... you can look for information online ... don't-forget to submit the report for assessment by week 48 (from observation of Civics classroom 2012-11-12)

The examination was quite clear in the instructional part (the selected subject content) of the pedagogic discourse in **the observed** classrooms, as indicated in the following citation:

> Teacher: ... today you have do solve the exercises that you will find/ on the learning platform ... I'll show examples on the smartboard...Then you go on to the task and you can ask me if you have any questions... (from Economics classroom 2012-09-11)

The teacher claimed that the exercises was to provide students with the necessary knowledge and skills for answering the questions and performing the forthcoming tests. Another common feature was that although ICT was used on a regular basis in the classroom[s], the regulative part of the pedagogical discourse, that shaped the form and structure of what was actually going on, consisted of a discourse where classroom talk and use of space resembled the most common way of organising teaching and learning in schools (Hoadley, 2006; Player-Koro, 2012a). This could be described as:

(a) Each lesson started with an introduction. The introduction was aimed at introducing the topic of the day and was an activity that took place at-the front of the classroom. The introduction was mediated either by the teacher or through digital technology (fig. 1).

Figure 1 Introduction

(b) In the next phase the teachers introduced the tasks that students were supposed to work with during the lesson. When students were occupied with the tasks, the teacher circulated tutoring individual students one at a time or in groups (figure 2). Some students worked with the tasks as they had been instructed whilst others were engaged in with their friends or surfing on their computers (figure 2).

Figure 2 Working on /with tasks

(c) At the end of the lessons teaching was once again an activity that took place at the front of the classroom (figure 1). During this activity the aim was to answer the students' questions and show how the tasks in the book were to be solved. Many of the questions concerned the content of the exam and the skills and requirements needed to pass.

SUMMARY

The main findings from the two years of study in 1:1 schools evidenced a frequent use of technology in classrooms supporting teaching and learning that could be considered as mainly traditional. Here teachers had a positive attitude towards the use of technology and found it a useful tool for managing their professional work. During the two years of study there was no sign that the use of technologies played a significant part in education innovation whatsoever (Bocconi et al., 2013). This does not mean that teaching has not changed however. It has. The point is that the introduction of ICT in educational settings seems to lack the potential that is often referred to, namely that of *transforming teaching and learning* in a specific way in keeping with the discourses of flexible performances that serve society's economic goals. Two points should be noted here: It is examinations rather than the presence of technology that contribute to the structuration of a pedagogic discourse. The evaluative criteria specified by the examination rather than the virtual worlds of the technology have a regulative effect on the instructional part of the pedagogic discourse. This can be seen in the selection of subject content and in the interactional patterns during lessons (figure 1, 2). Thus, even when ICT was integrated in the teaching and learning activities observed, the teacher was very much in control of the selection of content,

sequencing and pacing as well as being steered by his/her understanding of examination requirements that were not necessarily always under her/his immediate control. In the Durkheimian sense of education in the interests of social integration and control, there is nothing whatsoever that is new about this (Bernstein, 2000).

According to Bernstein this structuring of the pedagogical practice constitutes the main characteristic for what is defined as traditional forms of teaching and learning in schools (Bernstein, 2000). The examinations were the main structuring force behind what was really going on during these lessons. This was also the case in the present ICT-intensive classroom interactions as it was in our earlier studies either (a) prior to the extensive availability of ICT or (b) in classrooms where, although /even if available for use, ICT innovations were little used or not extensively used (see e.g. Beach, 1995, 1999, 2003) or (c) other high-stake contexts where ICT was made use of (Player-Koro, 2012a). It seems therefore, at least according to our analyses, to have had no general context independent impact on pedagogy. We hope we have been able to provide some illustration and explanation of this in the present paper.

Discussion

This study made use of a bottom-up perspective with a theoretically informed analysis that allowed us to see the way the pedagogic discourse was structured from performative demands and national policy documents together with traditional forms of evaluative criteria that students should respond to. The pedagogic discourse was, in other words, constituted by traditional discourses stemming from the pedagogic recontextualising field (PRF) and reinforced by the ever-increasing emphasis on assessment that have been the result of recontextualising of political discourses from the official recontextualising field (ORF) of marketization and performativity (D Beach & Dovemark, 2007).

This finding is important not least in relation to the increased emphasis on national testing and assessment that is part of a powerful discourse of performativity that exerts a strong influence on educational policy both on a national as well as on international levels (Ball, 2003). These tests have a significant impact on teaching and learning in schools, both in relation to what and how to learn. A problematisation of this—is more urgent than the reiteration of predictions made in research regarding the transformation and improvements of education through the use of technology — predictions where the lack of evidence for transformation or enhancements of educational standards commonly points to the teacher as the major hindrance in implementing technology in schools (Drent & Meelissen, 2008).

The results presented here may however also contribute to the current discussion (Selwyn, 2012) on the need for researchers in educational technology to distance themselves from the dominant discourse discussed above — a discourse that essentially consists of optimistic stories of the use of digital technology in education. Selwyn (2012) argues that the field of educational technology tends to be an inward-looking and self-referential field of study characterised by a lack of rigorous studies about what really takes place when technology is used.

Our findings were also in keeping with those of a meta-analyse of a sample of 600 articles in the area of ICT use for educational purposes (Player-Koro, 2012d), which concluded that, unlike other fields of academic studies, it seems as if the field of educational technology is particularly resistant to viewpoints that contradicts the view of technology as a potential force of positive change in education. This may indicate that there is a distinct authorial bias in this field of research (Player-Koro, 2012d; Randolph & Bednarik, 2008; Selwyn,

2011). It is not to be excluded that the discursive construction of the impact of technology on education as described above, meets the criteria for the definition of a dominant discourse (Ball, 1990). As is often the case in dominant discourses, authorial bias (Selwyn, 2011) focuses narrowly on possibilities to diagnosed problems, with the increased risk of missing 'the bigger picture', which in this case involves both the understanding and description of what actually happens with education and the educational system due to policy changes and what takes place in an educational context when teachers and students have unlimited/ubiquitous access to technology.

Concluding remarks

This submission is based on research which uses a multi-sited design that targets and compares learning, interaction and outcomes the aim of which is to discuss the challenges of conducting research based evaluation of digitally innovative online learning. In this paper we have tried to problematize this in relation to the results from a two-year study of schools that have been digitized by providing students and teachers with their own laptop. The main objective was to focus on teaching and learning patterns and organisational practice in schools where extensive use of technology is made. In summary, this study evidenced that:

- ICT was frequently used by teachers and students in a way that sustained and replicated traditional practices
- There was no sign in the data that the daily use of ICT resulted in a development process towards innovative teaching and learning practices.
- The performative discourse was the main structuring force for the educational setting and this appeared to reproduce traditional ways of organizing teaching and learning in schools.

The conclusions to be drawn from the investigation are very much in line with those of other extensive and critical studies. They are that 1:1 learning initiatives in Sweden and elsewhere seem to evidence only a weak link between technology use and the transformation of educational practices (Goodwin, 2011; Livingstone, 2011; Skolverket, 2013; Tallvid, 2010; Yuan-Hsuan et al., 2013). A possible difference between our conclusions and those of others, however, is that in other research the suggestion tends to be that the full potential of the use of ICT has not yet been reached, but that it can be (Bocconi et al., 2013). This line of reasoning springs from the conviction that ICT plays a prime role as a key enabler for innovation in education (Kampylis et al., 2012). We argue that educational change is not about technology and if it is our ambition to transform educational there are compelling reasons to take another point of departure. Technology alone will not transform education.

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