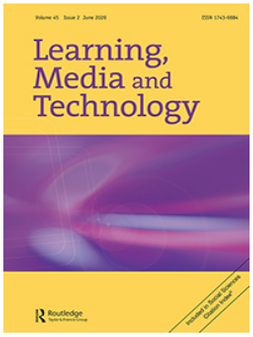

Learning, Media and Technology

ISSN: 1743-9884 (Print) 1743-9892 (Online) Journal homepage: https://www.tandfonline.com/loi/cjem20

Paradoxes of participation in the digitalization of education: a narrative account

Pekka Mertala

To cite this article: Pekka Mertala (2020) Paradoxes of participation in the digitalization of education: a narrative account, Learning, Media and Technology, 45:2, 179-192, DOI: 10.1080/17439884.2020.1696362

To link to this article: https://doi.org/10.1080/17439884.2020.1696362

LEARNING, MEDIA AND TECHNOLOGY
2020, VOL. 45, NO. 2, 179–192
https://doi.org/10.1080/17439884.2020.1696362

Routledge
Taylor & Francis Group

Paradoxes of participation in the digitalization of education: a narrative account

Pekka Mertala

Faculty of Education, University of Oulu, Oulu, Finland

ABSTRACT

The language used around the digitalization of education tends to be inherently political, value-laden, and deterministic. This position paper scrutinizes this so-called 'Ed-Tech speak' via narrative methodology. The analytical focus is the paradoxes that exist between the normalizing master narratives of Ed-Tech speak and the complexity and polyphony of everyday praxis in terms of participation. By using an educational tablet project conducted in Finnish primary and secondary schools as an empirical example this paper will problematize the promise of participation in the context of the digitalization of education through three different viewpoints: paradoxes of societal participation, paradoxes of participatory pedagogics, and paradoxical politics of participation.

ARTICLE HISTORY
Received 18 June 2019
Accepted 19 November 2019

KEYWORDS
Counter narrative; digitalization; educational technology; master narrative; participation

Introduction

> We can't go on together with suspicious minds
> And we can't build our dreams on suspicious minds

The words of Elvis Presley's 1969 hit song 'Suspicious Minds' may be true in love and romantic partnership. However, they are poor advice in the context of the digitalization of education,[1] where having a suspicious mind is essential as the language favored by education to describe digital processes, practices, and objectives tends to be inherently political and value-laden (Selwyn 2016a). This so-called Ed-Tech speak (Selwyn 2016a) consists of 'extensive claims, promotional activity, and imaginative marketing which centers on the idea that technical solutions have the capacity to transform education for the future' (Williamson 2017, 7–8) and is often certain of events, thereby leaving little room for alternate outcomes (Selwyn 2016a).

As Tom Cockburn (2005, 112) writes, 'the absence of conflict is something that should raise suspicion'. Thus, altering what is said and how it is being said is one of the most significant means of improving the integrity and overall impact of the field of educational technology research. Close attention should be paid to the language used to portray digital technology use in education (Selwyn 2016a). Discourses and narratives around the digitalization of education have been the subject of a moderate amount of research (e.g., Bigum and Kenway 2005; Funes and Mackness 2018; Selwyn 2015). Most often, the phenomenon is examined on a general level, such as by presenting the variety of discourses and narratives around the topic (Bigum and Kenway 2005; Selwyn 2015). This position paper complements the existing research by exploring the discourses and narratives within an empirical case study. By doing so, it will demonstrate the power issues underlying Ed-Tech speak in a more concrete and context-rooted manner than previous research.

Empirically, the foundation of this article is an educational tablet project conducted in primary and secondary schools in the Finnish city of Kaarina. That said, from an ethical viewpoint, it is

CONTACT Pekka Mertala pekka-oskari.mertala@oulu.fi

crucial to acknowledge that the article is not about Kaarina per se. Rather, it is about a broader educational and political phenomenon, of which this tablet project and the public debate around it form a rich and illustrative example. Thus, throughout the article, connections will be made between the Kaarina case and other national and international examples to provide a linkage between this specific story and the broader social context (Kim 2015, xvii).

As the concept of 'paradox' in the title implies, the current work argues that the relationship between Ed-Tech speak and the everyday realities of educational praxis do not correspond to the inherent positivity of the former (Selwyn 2011) and disregards the complexity and polyphony of the latter (Sancho-Gil, Rivera-Vargas, and Miño-Puigcercós 2019). Put differently, in this article, the concept of paradox refers to the view that when Ed-Tech speak and educational praxis are observed side by side, the phenomenon known as the 'digitalization of education' appears to exhibit seemingly contradictory qualities.[2] To keep the article focused, I will concentrate on the paradoxes that emerge within the theme of participation. Participation is a common topic in contemporary discussions regarding the digitalization of education (e.g., Andersen and Ponti 2014; DePietro 2013; Dooley et al. 2016; Lewis Ellison 2017). To participate, as defined by Merriam-Webster's dictionary, is to take part or to have a part or share in something.[3] In the context of educational research this 'something' typically refers to the shared power and responsibilities in decision-making to unpack the hierarchical asymmetry between the educator and the educatee (Shier 2001). In these views, participation is often represented as a scale, continuum, and/or typology which ranges from the superficial, such as listening to students, to shared and democratic decision-making between different parties (Thomas 2007).

Digital solutions often claim to afford more participatory practices than could be attained with traditional methods (Dooley et al. 2016; Farkas 2012; Lewis Ellison 2017). This viewpoint is piquantly captured in Farkas (2012) statement, that participatory technologies such as Web 2.0 have made it possible for all people to be both consumers and producers of information and have altered the way authority is conferred in many areas, including education (see also Funes and Mackness 2018; McLoughlin and Lee 2008). Put differently, digitalization is able to shape the traditionally teacher-led classroom dynamics into more participatory practices, in which students 'become involved and active participants in their own learning process' (Sadik 2008, 51).

Researching Ed-Tech speak

> To understand what is being said in any deep way people need to know what speakers or writers are trying to do. (Gee 2015, 1)

Bigum and Kenway (2005) suggested three categories to capture the discourses around the digitalization of education: doomsters, critics, and boosters.[4] Relying on nostalgia and conservatism, doomsters are 'writers of tragedy' who see nothing but dangers and disadvantages in digitalization (Bigum and Kenway 2005). While critics too possess a cautious attitude towards digitalization, their pessimism is not total. Instead, they adopt 'a mindset that is willing to recognise – and work within – the current and historical limitations of educational technology' (Selwyn 2011, 715). In other words, while not completely opposed to digitalization, they remain skeptical and 'challenge the taken-for-granted assumptions about the use of computers in schools and elsewhere' (Bigum and Kenway 2005, 103). The dominant discursive group, however, are boosters, who 'express unswerving faith in technology's capacity to improve education and most other things in society' (Bigum and Kenway 2005, 98). Two discursive sub-groups can be identified among boosters. The first is the discourse of digital re-schooling, which refers to descriptions of formal education provisions being reoriented and recast for a digital era (Selwyn 2015, 230–232). The second is the discourse of digital deschooling, which refers to the de-institutionalization of education (Bigum and Kenway 2005; Selwyn 2015). Both discourses resonate well with the vocabulary of Ed-Tech speak, which commonly advocates for '"flipping" the traditional classroom setup' and questions the need 'to actually "know" or be

"taught" anything in an age where things can be found out on a "just-in-time" basis' (Selwyn 2016a, 437).

Given that the history of digitalization of education is a decades-long continuous cycle of 'hype, hope, and disappointment' (Selwyn 2011, 715) the fixity of Ed-Tech speak is an interesting phenomenon. What makes the question even more compelling is that it is the internal logic of Ed-Tech speak that creates paradoxes by producing inflated expectations destined to lead to what Sancho-Gil, Rivera-Vargas, and Miño-Puigcercós (2019) call 'predictable failures'. The fixity and dominance, I would argue, has much to do with the notion that Ed-Tech speak is persuasive by nature and endorsed by those in positions of authority. More precisely, Ed-Tech speak contains seductive and convincing propositions (i.e., statements about education and how it works), presuppositions (treating certain propositions as given), and interpersonal (how relationships between people are presented) functions (Selwyn 2015, 235). These deterministic and optimistic views of technology as a shaper of the future of education are promoted by powerful global actors such as the Organisation for Economic Co-operation and Development and the European Commission (Saari and Säntti 2018), national educational administrations (Ingleby 2015), and various global technology companies and capital investment firms (Williamson 2018).

One way to theorize this issue is to approach Ed-Tech speak – as a phenomenon – as a 'master narrative', a normalizing narrative produced by those with power (Bamberg 2004). The techno-optimistic and techno-deterministic master narrative takes form in various discourses (i.e., discourses of re-schooling and de-schooling) belonging to the booster category. Voices criticizing or opposing digitalization can be conceptualized as counter-narratives (Bamberg 2004; Funes and Mackness 2018), which, like master narratives, consist of various discourses, such as those of the doomsters and critics (Bigum and Kenway 2005). In the following sections, I will place the arguments above in context by drawing empirical examples from the Kaarina tablet project.

Setting the scene: the Kaarina tablet project

The Kaarina tablet project was implemented in 2014–2016. The author did not participate in the project but became aware of and interested in it in 2016, when the project caught the attention of the media for reasons to be discussed later. The goal of the project was twofold. The first objective was to improve schools' technological infrastructure and pedagogical practices. The second objective was to conduct research on the impacts of tablet-based education.[5] For the purpose of this article, I have reconstructed the Kaarina project using various public sources that include, for example, project descriptions and reports as well as news pieces. The list of sources used is provided in Table 1.

The first step of the reconstruction was to arrange the data in chronological order, which can be understood as a form of narrative analysis in which the researcher combines various data sources to construct a coherent thematic story (Polkinghorne 1995). In the second phase, I explored how the importance of the project is argumentized and the identities of the project representatives. The aim of this inquiry was to recognize the role of Ed-Tech speak in the project rationale as well as gain an initial understanding of the balance of power among various parties at the start of the project. The following extract is taken from the introduction of the secondary school project report, written by the project representatives: the educational technology director and one school principal.

> There are many things that can be seen as the backbone of the tablet project. Several national strategies and documents, such as the Government Programme, the Education and Research Development Plan 2011–2016, and particularly the National Core Curriculum—which, as a normative document, strongly steers the direction of teaching—emphasize the importance of ICT [information and communications technology] in teaching.[6]

In a local and school context, the representative is arguably in a position of authority over other involved agents, such as teachers, students, and parents. Moreover, by using various national strategies as supportive references when framing the importance of the project, they are, metaphorically

Table 1. Data used to reconstruct the Kaarina case.

Text	Source
Project descriptions from secondary and primary schools	https://www.kaarina.fi/koulut/valkeavuori/Tablet/
Project website	https://digi-ope.com/tablet/?cat=2
Presentations about the project	https://peda.net/manttavilppula/ict-tuki/ojm/ideoita-opetukseen/ohjeita-ideoita/s2:file/download/b7cef568911a3d047ab14b9ad276d0c131cd7619/Sivtoimen_neuvpv_kaarina.pdf
Secondary school tablet project report	https://digi-ope.com/tablet/wp-content/uploads/2017/02/Opetuksendigitalisaatio_netti2016.pdf
Parents' petition and its online comments	https://www.adressit.com/vetoomus_kaarinan_tablet-opetuksen_jarkevoittamiseksi
Media reports and news pieces on the Kaarina case	https://www.ts.fi/uutiset/paikalliset/3124794/Kaarinan±kaupunki±peraantyi±tablettikiistassa https://www.turkulainen.fi/artikkeli/448588-kaarinassa-kohu-tablettien-kaytosta-koulun-opetus-heikkeni https://www.ts.fi/uutiset/paikalliset/2975013/Kaarina±vastaa±tablettihuoliin±keskustelulla https://www.tekniikkatalous.fi/tekniikka/ict/ts-tabletti-ei-kelvannut-kaarinan-koulut-tuovat-kirjat-takaisin-6606313 https://yle.fi/uutiset/3-9257223 https://yle.fi/uutiset/3-9309665 https://www.kuntsari.fi/2014/09/kaarinan-tablet-hanke-loi-uuden-toimintamallin-kirjakustannusalalle/
Kaarina phenomenon document	https://www.kaarina.fi/opetus_ja_koulutus/fi_FI/ … ja … /kaarina-ilmio_web.pdf
Kaarina's Ed-Tech plan	digi-ope.com/wp-content/uploads/2017/11/TVT-suunnitelmakooste2018_2020.pdf

speaking, standing on the shoulders of even more powerful agents (i.e., the government) and leaning on their higher authority to justify their case.

In relation to persuasive language, the most illustrative example of Ed-Tech speak is perhaps the public description of the project.

> "Put on your seatbelts, close all electronic devices, and sit quietly in your seats." The rules familiar to air passengers are everyday practice in the classroom as well. Kaarina wants to be a harbinger of the future and change the way we understand teaching and learning. We have launched the largest tablet project in Finland, which updates teaching methods to the present day and into the future. The devices enable students to become active agents guided by the teacher. Teacher-led work is replaced with self-directed and collaborative learning. The output is not what matters but what happens on the journey. Personal devices bring the best available technology to students whose parents lack the financial means to acquire a device for them. This provides everyone with the chance to succeed in an ever-digitalizing society, both in their studies and later in their working life.[7]

The extract is rich with examples of the seductive and deterministic routines of Ed-Tech speak. The discourse of re-schooling is prominent as the text portrays contemporary schooling as outdated and promises to 'update teaching methods' and replace teacher-led work 'with self-directed and collaborative learning' that enables students to become active participants in classroom activities. There is also no hesitation in naming equity and societal participation as clear long-term benefits of digitalization. Lastly, from the interpersonal perspective, the extract implies that the decision to digitalize has been a common and participatory effort by all citizens by using terms such as 'the city of Kaarina' and 'we' to identify those who are behind the project.

In the third phase, I examined how the claims and promises made in the project description were actualized during the project. In doing so, I noted that the project did not materialize as smoothly as the description suggested it would. In 2016, the parents of primary-school-aged children began to publicly oppose the project, challenging the inclusive and democratic tone of the description. According to the parent arguments, far from providing equal opportunities, the tablet project increased the inequality between children of different socioeconomic backgrounds. Furthermore, reports from the secondary school tablet project suggest digitalization did not lead to higher levels of student engagement. These voices were understood as counter-narratives to the 'official (master) narrative' of the representative. After that point, the tensions between master narratives and counter-

narratives were abstracted into three types of paradox: paradoxes of societal participation, paradoxes of participatory pedagogies, and paradoxical policies of participation. In the following sections, each of these paradoxes will be discussed in detail and in relation to international research literature. In the fourth and final phase, I explored the types of effect the counter-narratives had on the project and how these voices were treated by the representative. These viewpoints are discussed in the three aforementioned sections as well as in the epilogue that ends the article.

Paradoxes of societal participation

Virtually every reference framework defining the key competencies needed in contemporary times and in the future designates technology skills as an integral part of the twenty-first century (Voogt and Roblin 2012). This trend is also identifiable in the Finnish Core Curriculum for Basic Education as it defines digital competences as an important civic skill (Finnis National Agency of Education 2016). Put differently, the core of these frameworks and alignments is that one must master certain, yet often undefined, digital skills to fully participate in the ever-digitizing society. Previous research (e.g., Gui and Argentin 2011; Hatlevik et al. 2018) has identified small differences between the digital skills of adolescents and young adults from different socioeconomic backgrounds, favoring those from upper-class families. Thus, it is up to the schools to standardize students' digital skills and promote equal opportunities for societal participation.

Equity was one of the aims of Kaarina's tablet-project, based on a presumption that children from lower socioeconomic classes lack access to digital resources because their 'parents' lack the financial means to acquire a device for their children'. This so called 'needy child' discourse (Selwyn 2003) has been identified among Finnish educators' beliefs about children's access to digital technologies (Mertala 2019). That said, it is worth questioning how realistic such a 'digital gap' between children from different social classes is in a welfare country like Finland. The idea of a digital gap in terms of access to technologies being a static condition of absolute inequality between two distinct groups was already challenged more than a decade ago (Van Dijk 2006) and is not supported by recent empirical research. For example, 90% of Finnish children 12 years and older have their own smartphones (Merikivi, Myllyniemi, and Salasuo 2016) and in fact students from upper-class postal code areas use digital technologies less frequently in their schoolwork than other children (Tanhua-Piiroinen et al. 2019). Accordingly, reports from other Western countries including Australia (Harris, Straker, and Pollock 2017), the UK (Marsh 2015), and the US (Common Sense Media 2017) challenge the presumption of a digital gap as an unequal distribution in access to digital technologies.

Of course, one could argue that basic education is not only about balancing inequalities but supporting opportunities for all children to have a good life. From the viewpoint of digital competence this means basic education would provide all children with new skills and a more profound understanding related to digital technologies. This, however, does not appear to be the case in practice. Students who participated in Kaarina's secondary school tablet project reported they did not learn new technological skills in tablet-based teaching.[8] A finding supported by a larger assessment of the digital skills of nearly 8000 Finnish students in 2017–2018 noted that while a high computers per student ratio correlated positively with the frequency of technology use, no such correlation existed between computers per student ratio and students' technological skills (Tanhua-Piiroinen et al. 2019).

It is also worth exploring the actual methods schools are using in teaching children about digital skills. According to Timothy Rudd (2013, 154):

> The presumption that digital technologies used by children in school, and the purposes for which they are used in the school context, will have any direct or significant relationship to the digital tools used in the complex and diverse world of employment currently, let alone the future, is tentative at best.

In the Kaarina project, digitalization basically meant replacing printed books with tablet-based e-materials. It could be asked whether the use of subject-specific digital learning materials is

sufficient for teaching children general digital skills in the first place. In fact, the Kaarina case suggests that instead of providing educational equity the tablet project may have widened the educational gap between children from different socioeconomic backgrounds. According to several parents, the e-materials were of low-quality and concerns about the children's learning were expressed:

> The contemporary e-textbooks, especially the tablet-math used in the primary school, are substandard in their current form. They are difficult to use and the content is inadequate, illogical, and even incorrect in section.[9]

Some parents reported they bought math books for their children so the children would learn the skills they needed in the future. The comment implies the families with economic resources were able to tutor their children by providing additional learning resources. While the example is anecdotal, it is worth questioning whether the digitalization of education enforces rather than prevents educational inequality. This critical notion is supported when located within a broader context. Take MOOCs for example: while they have been publicized as a means to democratize education those typically enrolled are people already highly educated from high-income backgrounds and Western-contexts (Breslow et al. 2013; Christensen et al. 2013). Thus, instead of increasing educational equality MOOCs – in their present form – mainly serve the lifelong learning and further training of already educated people (Selwyn 2016b).

Paradoxes of participatory pedagogies

In the early 2000s, Finland became a model of basic education due its success in the PISA rankings (Sahlberg 2011). However, during the 2010s Finnish students' scores declined relatively and absolutely. This trend has caused a significant public debate about problems in Finnish basic education.[10] In particular, boys' learning outcomes have been a topic of concern and are often explained by low motivation (Wiklund 2017). The second main concern is students' general attitude toward school according to the latest school health survey, with 40% of eighth graders stating they do not feel comfortable at school (Department of Health and Welfare 2018). The development of school technology practices (and resources) has been suggested as an effective way to solve these problems (Parviainen 2015). One argument is that students' leisure time technology environments and school technology environments have become too different from each other, whereby students do not experience school as a meaningful place (Kumpulainen and Mikkola 2015), an argument often heard in international discussions as well.

The role of the airplane-metaphor presented at the beginning of the Kaarina project description pinpoints the difference between students' high-tech lifeworld outside the school and the low-tech practices of formal education: only in airplanes and in school do children and adolescents not have access to the internet or mobile devices. The idea that a mere digitization of school practices would make school more interesting and meaningful for students' is simplistic and young peoples' own digital cultures cannot be transferred to school as such. Instead, school activities that try to mimic students' informal digital lifeworld can be more alienating than participatory. An interesting example can be found in the study by Palmgren-Neuvonen, Jaakkola, and Korkeamäki (2015). In the paper, they describe the problems Finnish primary and secondary schools faced when trying to implement on online video publication practice by creating a public *YouTube* channel for school-based video production. The rationale behind this approach was that because many adolescents have adopted the role of content-creator in out-of-school contexts they exhibit a desire to do so in school as well.

This hypothesis about the students' filmmaking was only half-right: most of the students were indeed active video publishers in their leisure time. However, they did not engage in digital publishing in a school context. The reason appears to be that leisure time video publishing and school time video publishing were different things for the students. Leisure time video publishing was voluntarily

and the videos were about things meaningful for them (i.e., computer gaming, skateboarding, or riding hobby horses). School video publishing, in turn, was about curricular content and – as all schoolwork – it is never completely voluntary or student initiated. As one eighth grader pointed out, 'the fact that it's schoolwork and everyone would see it would be embarrassing! There's like no point in publishing it there!' (Palmgren-Neuvonen, Jaakkola, and Korkeamäki 2015, 265)

The disparity between leisure time and school video publishing was something not all teachers understood. The following outburst from one teacher is a piquant example:

> Our students are posting online in all kinds of social media applications like there's no tomorrow. Then they are not willing to say something in their own voice for digital presentations when asked. I think it's totally unintelligible! (Palmgren-Neuvonen, Jaakkola, and Korkeamäki 2015, 264)

The statement is informative in its sharpness: students' interests and opinions only matter if they are in line with the teacher's aspirations and goals. Thus, the Palmgren-Neuvonen et al. (2015) study provides an illustrative example of how approaches that are framed as participatory digital pedagogies are often merely superficial attempts with no sincere effort to understand what digital cultures and practices mean for students. Such starting points often lead to instrumental approaches, in which students' informal digital cultures are given value and space only when they can be 'pedagogized' to meet teacher-determinate objectives. This also means that participation can happen only within teacher-determined frames. Participation, in its highest form, should allow students to be critical, resist, or opt-out, or the power in decision-making is not actually shared (Shier 2001). Opting-out was not an option and even playing with voices was considered offensive and disorderly behavior. Thus, instead of participation such an approach can be conceptualized as tokenism where students seemingly have a voice but in fact have little or no influence (Hart 1992).

Examples where students' views and voices were vitiated were also found in the Kaarina tablet project. According to one report,[11] secondary school students were asked to evaluate tablet-based education on a scale from 4 to 10 on two occasions, at the beginning and at the end of the academic year 2015–2016. At the beginning, almost 70% of the students stated they were interested in using tablets for school tasks and graded their feelings with the two highest grades (9 and 10). However, under 30% of them felt the same at the end of the year. A similar declining trend was also visible in the student evaluations regarding the importance (beginning 42%, end 14%) and usefulness (beginning 39%, end 14%) of tablet-based education. Accordingly, whereas only 5% of students evaluated their interest toward tablet-based pedagogy with the three lowest grades (4–6) at the beginning of the project the number increased to 31% at the end. Once again, a similar trend took place with the student evaluations of the importance (beginning 6%, end 29%) and usefulness (beginning 9%, end 39%) of tablets.

The report concludes that the change in student evaluations is best explained by the collapse of high expectations. This notion is problematic, as it invalidates the students' criticism by blaming them for being too enthusiastic at the beginning of the project. In fact, that was not the case, given that students were able to weigh the advantages and disadvantages of tablet-based teaching. One student, for example, commented that with tablets,

> you can create nice and versatile presentations, and finding information is really easy. But then came these e-books. They are no good, really. The math book is especially bad.[12]

Based on this account, the change in students' evaluations does not appear to be caused by a collapse of inflated expectations. Rather, the comment suggests that the increased criticality towards tablet-based teaching was due the introduction of poor digital materials during the school year, a notion supported by parents' open criticism toward the use of e-books in primary school math classes. This possibility was not discussed in the report, leading to the broader question of whose voice and views are considered worthy in the context of the digitalization of education, which will be discussed more thoroughly in the following section.

Paradoxical politics of participation

This section focuses on the politics of participation, which refers to the question of who has a say in the digitalization of education. According to Barbara Turnbull (2002, 236), an ideal view of a participatory reform process would be one 'where staff, administrators, parents, students, and community members work together to make high-quality information-based decisions that benefit all students.' Yet again, the ideal appears to exist mainly at the discursive level. For example, while the importance of parental participation has been acknowledged and promoted in policy documents and white papers for decades, in practice parents are often considered barriers and opponents in educational reforms (Peressini 1998) and are not involved in reform processes (Borman et al. 2003), including technology integration (Lucas 2018). This is problematic, as having the ability to influence school decisions and future vision is important for parents (Jónsdóttir, Björnsdóttir, and Bæck 2017) and ignoring this desire can cause power struggles between parents and the school, as parents might become adversarial if they feel the school is failing to meet its responsibilities (Lake, Billingsley, and Stewart 2018).

This was the case in Kaarina as well. As previously discussed, the parents were not satisfied with the quality of the tablet-based learning materials. As a consequence, in October 2016 concerned parents created and published a petition for rationalizing tablet-based teaching in primary schools. Besides the pedagogical quality issues, they felt the whole technological infrastructure of the schools caused problems in the children's education. As stated in the petition, 'Technical difficulties, like bad internet connections, take time away from instruction and lower students' motivation'.[13] Several commentators also complained that when they expressed their concerns regarding educational administration they were not taken seriously. As stated by one commentator, 'Parents' concerns are not taken seriously. The ones who have made these decisions think that everything is fine. We do not agree.'[14] The Kaarina parents' dissatisfaction toward digitalization is not an isolated incident. According to a survey by Microsoft, 38% of US parents feel that children use too much technology at school (Sparvell 2018). The same applies to their agentic aspiration toward changing the status quo as Australian media have reported parents resisting digital practices in their children's schools because they are concerned about the applications' security deficiencies (Cook 2018).

Limited opportunities to influence school reform processes are not restricted only to parents. It appears teachers are not always heard in institutions' digitalization processes (Mertala 2015). This was also the case with the Kaarina project. The principal of one of the schools involved in the tablet project stated in an interview with a local newspaper that 'not all teachers would have immediately taken an electronic textbook, but this was our school policy'.[15] The comment raises the question, if the critical perspectives of the teachers were not been listened to or taken into account, who are the 'us' who make the policy and on whose behalf the principal is speaking? It appears, the 'us' refers to the teachers who are in favor of digitalization. Indeed, tech-savvy teachers are often considered the 'ideal' teachers of the twenty-first century and teachers with award-winning technological practices have been the subjects of study in order to remove barriers to technology integration (Ertmer et al. 2012). Tech-savvy teachers are also praised in public statements and are described as the harbingers – if not even the saviors – of education. These viewpoints are captured in the following extracts from a policy recommendation report by the Finnish Parliamentary Committee on Future.

First, the report suggests there is 'an initial agreement on the backwardness of Finnish schools' (Saari and Säntti 2018, 447) by claiming that

> [w]hen a young person comes to school, he feels that the electricity is turned off and the network is turned off. He will step back in time over 50 years, with almost identical knowledge practices as his grandfather (Lonka et al. 2013, 94–95).

'Luckily though', as the authors continue:

> Finland now has more teachers and principals who have acknowledged [the inevitability of digitalization] and are dedicated to the cause. … We need more of these teachers and principals (Lonka et al. 2013, 95).

While pro-technology teachers are given praise and glory, teachers who are cautious about the reforms are often referred to with the unflattering term 'change-resistant' (Tervasmäki and Tomperi 2018), a label often used in a rather imprudent manner. A closer examination of the principal's quote, for example, suggests that the more reluctant teachers in Kaarina were not opposing the use of e-textbooks, per se. Instead, it was the hasty schedule they felt most uncomfortable with. In other words, it seems that some teachers would have preferred a more flexible schedule and a greater level autonomy for and in conducting the reform. The reasons for this are not specified but one possible explanation is the teachers wanted to familiarize themselves with the material and/or compare the materials of different service providers. This interpretation is supported by previous research suggesting that teachers are only willing to introduce new tools, methods, and content if they believe it supports the achievement of pedagogical goals (Ertmer and Ottenbreit-Leftwich 2010) and avoid using them if they feel the risks outweigh the benefits (Howard 2013).

Another example worth examining can be found in the Finnish City of Helsinki. In autumn 2016, the city Board of Education announced a plan to allocate a certain percentage of teaching to digital pedagogy.[16] In grades 1 and 2, digital technologies would be used in at least 30% of teaching, in grades 3–6 at least 50%, and at least 70% in upper secondary education. The implementation of these requirements would also be systematically monitored. In the Finnish context teacher autonomy regarding the methods and tools for teaching has been considerably higher compared to other countries (Sahlberg 2011). Thus, a top-down requirement to set the amount of digital education is a radical policy that can be interpreted as an insult to teacher autonomy. This, apparently, was how teachers felt about the plan. Soon after the announcement of the plan an upper-secondary school philosophy and psychology teacher, Arno Kotro, published a critical blog entry about the plan calling it the 'force feeding of digital' to teachers and schools (Kotro 2016). As Kotro is also a well-known author and popular columnist, his blog entry gained notable visibility and the City of Helsinki decided to postpone the plan for an unspecified time (Ovaskainen 2016). At the time of this writing no new announcements regarding the allocation of technology use have been made.

The Kaarina case took a somewhat similar course as the parents' petition captured the attention of regional and national media. The intensive media coverage led schools to move from a purely tablet-based teaching to using both digital and traditional tools side by side. This so-called hybrid model, which combines the 'best from the both worlds', was later introduced as Kaarina's new official pedagogical strategy:

> The model for Kaarina's near future is called the hybrid model. Students still have access to traditional printed textbooks used alongside various digital learning materials such as e-books, learning, games, etc.[17]

Both of these examples suggest that when counter narratives are made public they can challenge and undermine master narratives and act as an agent for a social change. This notion echoes Neil Selwyn's (2016a, 442) argument that if a greater diversity of people are encouraged to speak up about education and technology these sources would better reflect the present failures and not-so-glorious histories of education and technology and, thus, provide a counterpoint to what currently passes for public discourse on the topic. While I fully agree regarding the importance of providing room for polyphonic discourses it must be remembered that a greater variation of voices does not necessarily change the unjust power-relations of different agents in the bigger picture. This claim is more thoroughly explained in the following epilogue.

Epilogue

Kim (2015) has warned narratively oriented researchers about 'epic closures' that satisfy readers by providing a desired and unambiguous ending to the story. On a superficial level, the Kaarina case is a classic example of the victorious underdog story: A bunch of concerned parents who were able to confront and overcome not only the educational administration of the city but also indirectly

national education policy requirements. This closure feels justified, emotionally rewarding and empowering, and that is exactly what makes it dangerous.

First, it is questionable whether the education administration would have withdrawn tablet-based teaching if the media had not been attracted to the case and caused undesired publicity for the city. Based on previous research on the parents' role in educational reforms (e.g., Abrams and Gibbs 2002; Borman et al. 2003) the assumed answer would be no. Second, although the parents' concerns and actions were the trigger behind the shift from tablet-based teaching to a hybrid model, their role in the change was not mentioned in the documents describing Kaarina's new Ed-Tech strategy.[18] Instead, the hybrid model has become the new master narrative told by the education administration. In other words, despite the master narrative changing the narrators have remained the same – a notion that underlines the imbalanced power relations between the different parties. The validity of this claim can be easily tested with a hypothetical scenario: imagine a situation in which Kaarina's new policy documents were the sources where we first learned about the hybrid model. Would we have any idea about the power struggles and the chain of events that led to the current situation? No, we would not.

Kaarina's route to the hybrid model is an illustrative example of what Selwyn (2016a), citing Giroux (2014), terms 'organized forgetting' – remaining silent about complex political and moral issues regarding intricate social phenomena, including educational reforms and digitalization. This notion resonates well with Cockburn's (2005) argument that the absence of conflict is always suspicious: exaggerated harmony means that some voices are being silenced more or less purposefully. In the case of Kaarina, there appears to be a reputation to protect: according to the project representative, the city has a long tradition of developing physical and digital learning environments, for which it has gained national and international recognition. They also argue that 'the leap taken in Kaarina is a unique one'[19] the choice of words being an explicit reference to the mandate for Finnish schools to take a 'digital leap' by modernizing their technological infrastructures (Saari and Säntti 2018). Parent protests have not had a noticeable effect on this public image, as the city organized national seminars on tablet-based teaching and learning in 2016–2018. In other words, despite the less-than-encouraging results of the project, the city has been successful in presenting itself not only as a benchmark place of the 'digital leap' but also as a pioneer of the hybrid model.

To conclude, suspicious minds are needed as an antidote against the amnesia-like process of organized forgetting. Therefore, many more accounts of 'digital downsides' (Selwyn 2016c), 'anatomies of failure' (Baker, Bernard, and Dumez-Féroc 2012), and 'Ed-Tech pushbacks' (Williamson, Potter, and Eynon 2019) need to be made public and discussed in relation to the exaggerated claims and promises of Ed-Tech speak. This way, we could pinpoint the illogical aspects of Ed-Tech speak and promote the types of discourses and narratives that acknowledge and embrace the complexity of education, learning, and technology.

Notes

1. Here the digitalization of education refers to two things: the use of digital resources in teaching (often called technology integration; Ertmer et al. 2012) and the digitalization of the content and goals of education (e.g., the inclusion of computing and/or digital literacy in the national curricula; Williamson et al. 2018)
2. https://www.merriam-webster.com/dictionary/paradox
3. https://www.merriam-webster.com/dictionary/participate
4. Originally, there was also a fourth group in Bigum and Kenway's (2005) paper: anti-schoolers. However, because anti-schoolers are categorized as a sub-group of boosters, they are not included among the main groups in this article.
5. http://digi-ope.com/tablet/wp content/uploads/2017/02/Opetuksendigitalisaatio_netti2016.pdf
6. http://digi-ope.com/tablet/wp content/uploads/2017/02/Opetuksendigitalisaatio_netti2016.pdf
7. https://www.kaarina.fi/koulut/valkeavuori/Tablet/
8. http://digi-ope.com/tablet/wp content/uploads/2017/02/Opetuksendigitalisaatio_netti2016.pdf
9. https://www.adressit.com/vetoomus_kaarinan_tablet-opetuksen_jarkevoittamiseksi
10. For example https://www.is.fi/kotimaa/art-2000000688193.html; https://yle.fi/uutiset/3-6965181

11. http://digi-ope.com/tablet/wp content/uploads/2017/02/Opetuksendigitalisaatio_netti2016.pdf
12. https://www.adressit.com/keskustelu/180954#13
13. https://www.adressit.com/vetoomus_kaarinan_tablet-opetuksen_jarkevoittamiseksi
14. https://www.adressit.com/vetoomus_kaarinan_tablet-opetuksen_jarkevoittamiseksi
15. https://www.ts.fi/uutiset/paikalliset/2973256/Kaarinalaisvanhemmat+vastustavat+tablettiopetusta+heikkotasoisena
16. https://web.archive.org/web/20161020014250/https://www.hel.fi/static/public/hela/Opetuslautakunta/Suomi/Esitys/2016/Opev_2016-09-13_OLK_10_El/00C3015E-CD1A-CA21-8414-56FED4F00000/Liite.pdf
17. https://www.kaarina.fi/opetus_ja_koulutus/fi_FI/opetus_ja_koulutus/_files/97580637769443599/default/kaarina-ilmio_web.pd
18. https://www.kaarina.fi/opetus_ja_koulutus/fi_FI/opetus_ja_koulutus/_files/97580637769443599/default/kaarina-ilmio_web.pd; https://digi-ope.com/wp-content/uploads/2017/11/TVT-suunnitelmakooste2018_2020.pdf
19. http://digi-ope.com/tablet/wp content/uploads/2017/02/Opetuksendigitalisaatio_netti2016.pdf

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

Dr. Pekka Mertala works as a postdoctoral researcher in the Faculty of Education at the University of Oulu.

ORCID

Pekka Mertala http://orcid.org/0000-0002-3835-0220

References

Abrams, L. S., and J. T. Gibbs. 2002. "Disrupting the Logic of Home-School Relations: Parent Involvement Strategies and Practices of Inclusion and Exclusion." *Urban Education* 37 (3): 384–407. doi:10.1177/004208502128847414.

Andersen, R., and M. Ponti. 2014. "Participatory Pedagogy in an Open Educational Course: Challenges and Opportunities." *Distance Education* 35 (2): 234–249. doi:10.1080/01587919.2014.917703.

Baker, M., F. X. Bernard, and I. Dumez-Féroc. 2012. "Integrating Computer-Supported Collaborative Learning Into the Classroom: the Anatomy of a Failure." *Journal of Computer Assisted Learning* 28 (2): 161–176. doi:10.1111/j.1365-2729.2011.00435.x.

Bamberg, M. 2004. "Considering Counter-Narratives." In *Considering Counter-Narratives: Narrating, Resisting, Making Sense*, edited by M. Bamberg and M. Andrews, 351–371. Amsterdam, NL: John Benjamins Publishing.

Bigum, C., and J. Kenway. 2005. "New Information Technologies and the Ambiguous Future of Schooling—Some Possible Scenarios." In *Extending Educational Change*, edited by A. Hargreaves, 95–115. Cham, NL: Springer.

Borman, G. D., G. M. Hewes, L. T. Overman, and S. Brown. 2003. "Comprehensive School Reform and Achievement: A Meta-Analysis." *Review of Educational Research* 73 (2): 125–230. doi:10.3102/00346543073002125.

Breslow, L., D. Pritchard, J. DeBoer, G. Stump, A. Ho, and D. Seaton. 2013. "Studying Learning in the Worldwide Classroom Research Into EdX's First MOOC." *Research & Practice in Assessment* 8: 13–25. https://www.rpajournal.com/dev/wp-content/uploads/2013/05/SF2.pdf.

Christensen, G., A. Steinmetz, B. Alcorn, A. Bennett, D. Woods, and E. Emanuel. 2013. *The MOOC phenomenon: Who takes Massive Open Online Courses and why?* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2350964.

Cockburn, T. 2005. "Children's Participation in Social Policy: Inclusion, Chimera or Authenticity?" *Social Policy and Society* 4 (2): 109–119. doi:10.1017/S1474746404002258.

Common Sense Media. 2017. *Zero to Eight: Children's Media Use in America* 2017. https://www.commonsensemedia.org/research/the-common-sense-census-media-use-by-kids-age-zero-to-eight-2017.

Cook, H. 2018. 'It was creepy': the parents opting out of technology in the classroom. *The Age*. https://www.theage.com.au/national/victoria/it-was-creepy-the-parents-opting-out-of-technology-in-the-classroom-20180825-p4zzqf.html.

Department of Health and Welfare. 2018. https://sampo.thl.fi/pivot/prod/fi/ktk/ktk1/summary_perustulokset?alue_0=87869&mittarit_0=199594&mittarit_1=200101&mittarit_2=187203&vuosi_2017_0=v2017.

DePietro, P. 2013. "Transforming Education with new Media: Participatory Pedagogy, Interactive Learning and Web 2.0." *International Journal of Technology, Knowledge & Society* 8 (5): 1–11. doi:10.18848/1832-3669/cgp/v08i05/56321.

Dooley, Mc Munn, T. Lewis Ellison, M. Welch, M. Allen, and D. Bauer. 2016. "Digital Participatory Pedagogy: Digital Participation as a Method for Technology Integration in Curriculum." *Journal of Digital Learning in Teacher Education* 32 (2): 52–62. doi:10.1080/21532974.2016.1138912.

Ertmer, P. A., and A. T. Ottenbreit-Leftwich. 2010. "Teacher Technology Change: How Knowledge, Confidence, Beliefs, and Culture Intersect." *Journal of Research on Technology in Education* 42 (3): 255–284. doi:10.1080/15391523.2010.10782551.

Ertmer, P. A., A. T. Ottenbreit-Leftwich, O. Sadik, E. Sendurur, and P. Sendurur. 2012. "Teacher Beliefs and Technology Integration Practices: A Critical Relationship." *Computers & Education* 59 (2): 423–435. doi:10.1016/j.compedu.2012.02.001.

Farkas, M. 2012. "Participatory Technologies, Pedagogy 2.0 and Information Literacy." *Library Hi Tech* 30 (1): 82–94. doi:10.1108/07378831211213229.

Finnish National Agency of Education. 2016. Perusopetuksen opetussuunnitelman perusteet 2014 (4th Ed) [The national core curriculum guidelines for basic education 2014]. https://www.eduskunta.fi/FI/tietoaeduskunnasta/julkaisut/Documents/tuvj_8(2013.pdf https://www.oph.fi/download/163777_perusopetuksen_opetussuunnitelman_perusteet_2014.pdf.

Funes, M., and J. Mackness. 2018. "When Inclusion Excludes: A Counter Narrative of Open Online Education." *Learning, Media and Technology* 43 (2): 119–138. doi:10.1080/17439884.2018.1444638.

Gee, J. P. 2015. "Discourse, Small d, big D." In *The International Encyclopedia of Language and Social Interaction*, edited by K. Tracy, C. Ilie, and T. Sandel. Hoboken, NJ: Wiley. doi:10.1002/9781118611463/wbielsi016.

Giroux, H. A. 2014. *The Violence of Organized Forgetting: Thinking Beyond America's Disimagination Machine*. San Francisco, CA: City Lights Publishers.

Gui, M., and G. Argentin. 2011. "Digital Skills of Internet Natives: Different Forms of Digital Literacy in a Random Sample of Northern Italian High School Students." *New Media & Society* 13 (6): 963–980. doi:10.1177/1461444810389751.

Harris, C., L. Straker, and C. Pollock. 2017. "A Socioeconomic Related 'Digital Divide' Exists in how, not if, Young People use Computers." *PloS One* 12 (3), https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0175011.

Hart, R. A. 1992. *Children's Participation: From Tokenism to Citizenship*. Innocenti essays no: 4. Florence, Italy: UNICEF International Child Development Centre. https://www.unicef-irc.org/publications/pdf/childrens_participation.pdf.

Hatlevik, O. E., I. Throndsen, M. Loi, and G. B. Gudmundsdottir. 2018. "Students' ICT Self-Efficacy and Computer and Information Literacy: Determinants and Relationships." *Computers & Education* 118: 107–119. doi:10.1016/j.compedu.2017.11.011.

Howard, S. 2013. "Risk-aversion: Understanding Teachers' Resistance to Technology Integration." *Technology, Pedagogy and Education* 22 (3): 357–372. doi:10.1080/1475939x.2013.802995.

Ingleby, Ewan. 2015. "The Impact of Changing Policies about Technology on the Professional Development Needs of Early Years Educators in England." *Professional Development in Education* 41 (1): 144–157. doi:10.1080/19415257.2014.894482.

Jónsdóttir, K., A. Björnsdóttir, and U.-D. Bæck. 2017. "Influential Factors Behind Parents' General Satisfaction with Compulsory Schools in Iceland." *Nordic Journal of Studies in Educational Policy* 3 (2): 155–164. doi:10.1080/20020317.2017.1347012.

Kim, J. H. 2015. *Understanding Narrative Inquiry: The Crafting and Analysis of Stories as Research*. Thousand Oaks: Sage.

Kotro, A. 2016. Nyt järki käteen, opetuslautakunta! [Be sensible, educational administrative!]. http://arnokotro.puheenvuoro.uusisuomi.fi/223056-nyt-jarki-kateen-opetuslautakunta.

Kumpulainen, K., and A. Mikkola. 2015. "Oppiminen ja koulutus digitaalisella aikakaudella [Learning and schooling in digital era]." In *Digitaalinen oppiminen ja oppimisympäristöt*, edited by M. Kuuskorpi, 9–45. Opetushallitus. http://digi-ope.com/tablet/wp-content/uploads/2015/03/Digit_oppiminen_netti.pdf.

Lake, B. J., B. Billingsley, and A. Stewart. 2018. "Building Trust and Responding to Parent–School Conflict." In *Handbook of Leadership and Administration for Special Education*, edited by J. B. Crockett, B. Billingsley, and M. L. Boscardin, 265–278. London: Routledge.

Lewis Ellison, T. 2017. "Digital Participation, Agency, and Choice: An African American Youth's Digital Storytelling About Minecraft." *Journal of Adolescent & Adult Literacy* 61 (1): 25–35. doi:10.1002/jaal.645.

Lonka, K., L. Hietajärvi, J. Makkonen, N. Sandström, and L. Vaara. 2013. Tulevaisuuden opettajankoulutus – millaiseen kouluun ja miten? [Teacher education in the future]. In: Uusi oppiminen (pp. 9 –11). Eduskunnan tulevaisuusvaliokunnan julkaisuja 8. https://www.eduskunta.fi/FI/tietoaeduskunnasta/julkaisut/Documents/tuvj_8(2013.pdf.

Lucas, M. 2018. "External Barriers Affecting the Successful Implementation of Mobile Educational Interventions." *Computers in Human Behavior*. Advanced online publication. doi:10.1016/j.chb.2018.05.001.

Marsh, J. 2015. "Exploring play and creativity in pre-schoolers' use of apps: Final project report." Technology and Play. http://www.techandplay.org/reports/TAP_Final_Report.pdf.
McLoughlin, C., and M. Lee. 2008. "The Three p's of Pedagogy for the Networked Society: Personalization, Participation, and Productivity." *International Journal of Teaching and Learning in Higher Education* 20 (1): 10–27.
Merikivi, J., S. Myllyniemi, and M. Salasuo. 2016. *Media hanskassa: Lasten ja nuorten vapaa-aikatutkimus 2016 mediasta ja liikunnasta* [Grasp the media: Media and sports in children's and adolecents freetime]. Verkkojulkaisuja (Nuorisotutkimusseura), nro 104, Kenttä. https://www.nuorisotutkimusseura.fi/images/julkaisuja/media_hanskassa.pdf.
Mertala, P. 2015. "Tieto- ja viestintätekniikka ja työssä oppiminen: (mikro) kertomuksia esiopetuksesta. [ICT and in-job learning: (Micro) narratives from pre-primary education]." *Aikuiskasvatus* 35 (3): 189–198.
Mertala, P. 2019. "Wonder Children and Victimizing Parents – Preservice Early Childhood Teachers' Beliefs About Children and Technology at Home." *Early Child Development and Care* 189 (3): 392–404. doi:10.1080/03004430.2017.1324434.
Ovaskainen, T. 2016. Arno Kotron digiavatuminen leviää – Opetuslautakunta vastaa 10 väitteeseen [Education administrative responses to 10 claims by Kotro] https://www.uusisuomi.fi/kotimaa/204382-arno-kotron-digiavautuminen-leviaa-opetuslautakunnan-pj-minerva-krohn-vastaa-10.
Palmgren-Neuvonen, L., M. Jaakkola, and R. L. Korkeamäki. 2015. "School-context Videos in Janus-Faced Online Publicity: Learner-Generated Digital Video Production Going Online." *Scandinavian Journal of Educational Research* 59 (3): 255–274. doi:10.1080/00313831.2014.996599.
Parviainen, J. 2015. "Teknologisoituva koulu oppimisen elämyspuistona: Valtion opetusteknologiastrategian jalkauttaminen kouluihin 2010-luvulla [Digitalizing school as an amusement park: Implenenation of national educational technology strategies in 2010s]." *Kulttuurintutkimus* 32 (2): 3–14.
Peressini, D. D. 1998. "The Portrayal of Parents in the School Mathematics Reform Literature: Locating the Context for Parental Involvement." *Journal for Research in Mathematics Education* 29 (5): 555–582.
Polkinghorne, D. E. 1995. "Narrative Configuration in Qualitative Analysis." *International Journal of Qualitative Studies in Education* 8 (1): 5–23. doi:10.1080/0951839950080103'.
Rudd, T. 2013. "The Ideological Appropriation of Digital Technology in UK Education: Symbolic Violence and the Selling and Buying of the "Transformation Fallacy"." In *The Politics of Education and Technology*, edited by N. Selwyn and K. Facer, 147–166. New York, NY: Palgrave Macmillan.
Saari, A., and J. Säntti. 2018. "The Rhetoric of the 'Digital Leap' in Finnish Educational Policy Documents." *European Educational Research Journal* 17 (3): 442–457. doi:10.1177/1474904117721373.
Sadik, A. 2008. "Digital Storytelling: A Meaningful Technology-Integrated Approach for Engaged Student Learning." *Educational Technology Research and Development* 56 (4): 487–506. doi:10.1007/s11423-008-9091-8.
Sahlberg, P. 2011. "Developing Effective Teachers and School Leaders: The Case of Finland." In *Teacher and Leader Effectiveness*, edited by L. Darling-Hammond, and R. Rothman, 13–21. Alliance for Excellent Education. Stanford, CA: SCOPE.
Sancho-Gil, J. M., P. Rivera-Vargas, and R. Miño-Puigcercós. 2019. "Moving Beyond the Predictable Failure of Ed-Tech Initiatives." *Learning, Media and Technology*. Advanced online publication. doi:10.1080/17439884.2019.1666873.
Selwyn, N. 2003. "Doing IT for the Kids': Re-Examining Children, Computers and the Information Society." *Media, Culture & Society* 25 (3): 351–378. doi:10.1177/0163443703025003476.
Selwyn, N. 2011. "Editorial: In Praise of Pessimism-the Need for Negativity in Educational Technology." *British Journal of Educational Technology* 42 (5): 713–718. doi:10.1111/j.1467-8535.2011.01215.x.
Selwyn, N. 2015. "The Discursive Construction of Education in the Digital age." In *Discourse and Digital Practices. Doing Discourse Analysis in the Digital Age*, edited by R. Jones, A. Chik, and C. Hafner, 226–240. New York, NY: Routledge.
Selwyn, N. 2016a. "Digital Downsides: Exploring University Students' Negative Engagements with Digital Technology." *Teaching in Higher Education* 21 (8): 1006–1021. doi:10.1080/13562517.2016.1213229.
Selwyn, N. 2016b. "Minding our Language: Why Education and Technology is Full of Bullshit … and What Might be Done About it." *Learning, Media and Technology* 41 (3): 437–443. doi:10.1080/17439884.2015.1012523.
Selwyn, N. 2016c. *Is Technology Good for Education?* Cambridge, MA: Polity.
Shier, H. 2001. "Pathways to Participation: Openings, Opportunities and Obligations." *Children & Society* 15 (2): 107–117. doi:10.1002/chi.617.
Sparvell, M. 2018. New survey: What parents think about technology in the classroom. https://educationblog.microsoft.com/en-us/2018/08/new-survey-what-parents-think-about-technology-in-the-classroom/.
Tanhua-Piiroinen, E., S.-S. Kaarakainen, M.-T. Kaarakainen, J. Viteli, and A. Kivinen. 2019. *Digiajan peruskoulu [Basic education in the digital era]*. Valtioneuvoston selvitys- ja tutkimustoiminnan julkaisusarja 6 http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/161383/6-2019-Digiajan%20peruskoulu_.pdf?fbclid=IwAR1HXTRw7fiMGvTxW-1jXR3FwMzMD93irwnuCEcnzWd4xxVQlMmN4YsFaYM.
Tervasmäki, T., and T. Tomperi. 2018. "Koulutuspolitiikan arvovalinnat ja suunta satavuotiaassa Suomessa [the values and viions of educational policy in Finland]." *Niin & Näin* 25 (2): 164–200. http://netn.fi/sites/www.netn.fi/files/netn182-x2.pdf.

Thomas, N. 2007. "Towards a Theory of Children's Participation." *International Journal of Children's Rights* 15 (2): 199–218. doi:10.1163/092755607X206489.
Turnbull, B. 2002. "Teacher Participation and Buy-in: Implications for School Reform Initiatives." *Learning Environments Research* 5 (3): 235–252.
Van Dijk, J. A. 2006. "Digital Divide Research, Achievements and Shortcomings." *Poetics* 34 (4–5): 221–235. doi:10.1016/j.poetic.2006.05.004.
Voogt, J., and N. P. Roblin. 2012. "A Comparative Analysis of International Frameworks for 21st Century Competences: Implications for National Curriculum Policies." *Journal of Curriculum Studies* 44 (3): 299–321. doi:10.1080/00220272.2012.668938.
Wiklund, S. M. A. 2017. "Tyttöjen ja poikien arvosanaerot motivaatiotekijöiden ja PISA-tutkimusten valossa [Differences in girls' and boys' grades in relation to motivation and PISA-studies]." *Kasvatus* 48 (1): 52–56.
Williamson, B. 2017. *Big Data in Education: The Digital Future of Learning, Policy and Practice*. Thousand Oaks, CA: Sage.
Williamson, B. 2018. "Silicon Startup Schools: Technocracy, Algorithmic Imaginaries and Venture Philanthropy in Corporate Education Reform." *Critical Studies in Education* 59 (2): 218–236. doi:10.1080/17508487.2016.1186710.
Williamson, B., A. Bergviken Rensfeldt, C. Player-Koro, and N. Selwyn. 2018. "Education Recoded: Policy Mobilities in the International 'Learning to Code' Agenda." *Journal of Education Policy*. Advance online publication. doi:10.1080/02680939.2018.1476735.
Williamson, B., J. Potter, and R. Eynon. 2019. "New Research Problems and Agendas in Learning, Media and Technology: The Editors' Wishlist." *Learning, Media and Technology* 44 (2): 87–91. doi:10.1080/17439884.2019.1614953.