Full length article

Digital labour in school: Smartphones and their consequences in classrooms

Antti Paakkari[a],[*], Pauliina Rautio[b], Verneri Valasmo[c]

[a] University of Helsinki, Finland
[b] University of Oulu, Finland
[c] Åbo Akademi University, Finland

ARTICLE INFO

ABSTRACT

This paper reflects on the forms of digital labour present in upper secondary school students' smartphone use during the school day. Digital labour is understood as value-producing online activity, for example the labour of producing content for social media platforms such as Instagram or Facebook. Through analysis of students' phone use in classroom we approach aspects of digital labour intertwining with school. In the paper, theoretical perspectives on digital labour are connected with ethnographic data on student phone use. Our findings suggest that digital labour has become a permanent part of school life. Two main consequences are identified. Firstly, for the students the school is no longer a place where work does not take place, as digital labour intertwines with the school day. Secondly, technologies introduce new corporate actors into the classroom space that schools have to negotiate with.

1. Introduction

What happens to the distinctions between school, work and play when students sit in classrooms, simultaneously taking part in education *and* producing content on social media? The theory of cognitive capitalism gives us a possibility to look at this activity as the production of value, or in other words, as *digital labour*. In this article, we discuss and analyse moments where upper secondary school students use smartphones in classrooms.

Phones have brought internet use into the classroom. This has also meant that commercial actors, such as Google or Facebook, have gained a new foothold inside schools. Through detailed analysis of students' classroom phone use, this article seeks to analyse the consequences of smartphones' school presence from two directions. Firstly, by looking at the labour phone users are engaging in while using applications and social media designed to generate economic profit for global enterprises; and secondly, by asking what the arrival of new commercial actors means in Nordic classrooms.

The theory of cognitive capitalism has shown how productive activity is no longer situated in spaces traditionally reserved for it but can be found practically anywhere (Hardt & Negri, 2001; Lazzarato, 1996; Terranova, 2004). This helps us to analyse the changing conditions of labour in the current capitalist economy. One of the most interesting recent developments has been the discussion on the labour people engage in while producing content for the social media. These activities have been theorized through concepts such as digital labour, digital work, audience labour and free Internet labour. In this paper, we use the concept of digital labour to look at value-creating online activity that is at the heart of current economic profit generation.

This article asks, if digital labour has a role in students' lives during school hours, and how smartphone use can be analysed

---

through the concept. Specifically, we approach two questions: *firstly, how do students engage in digital labour in classrooms, and secondly, what does the presence of smartphones mean to the idea of the classroom as a state-controlled space?* The empirical focus is on how 16- to 17-year-old upper secondary school students use their smartphones and social media during school days.

In this article, we approach these questions from a conceptual viewpoint. In addition to this, we also engage video ethnographic data and student interviews, with a focus on the context, content and duration of students' online activity informed by their own framing of it as well as our core analytical concepts. By working with data that provides an exceptionally detailed picture of how upper secondary school students use their phones in classrooms, we seek an in-depth understanding of what actually happens on students' phones and what are its broader consequences in school.

2. Digital labour

While working primarily with the concept of digital labour, this article builds on the critical research on free internet labour and audience labour (Caraway, 2011; Fuchs, 2014; Pasquinelli, 2009; Postigo, 2016; Terranova, 2004). On a basic level, we are dealing with changing contents and definitions of work. With its emphasis on knowledge production, communication, affectivity and immaterial labour, the theory of cognitive capitalism asks: what constitutes productive activity in the contemporary capitalist economy? Surplus value is being harvested from new locations, as some of the biggest companies in the current economy, such as Facebook or Google, base their value formation on user activity, as Pasquinelli (2009) demonstrates in his reading of Google's PageRank algorithm. In analysing this new economy, the central questions have been: where is the value produced and by whom, and how are they compensated? Following Fuchs and Sevignani (2013), we define digital work as 'the organisation of human experiences with the help of human brain, digital media and speech in such a way that new products are created' (p. 253). As they point out, digital labour is the valorisation dimension of digital work. The distinction between work and labour comes from Marx, who defines work as free activity and labour as its alienated version, as activity in which the means of production are no longer owned by the producer who therefore has no choice but to freely sell their labour power.

In her now famous book *Network Culture* (2004), Tiziana Terranova looks at the work internet users do while building web sites and virtual spaces or simply sharing and uploading content on social media, and brings out key points regarding value production in internet environments. Firstly, the value generated in the internet is 'extremely labour-intensive' (p. 90). This is because any particular content cannot simply be created and left to its own devices, but has to be updated and modified constantly for it to remain interesting. Terranova's example of a web site that has to constantly fight off obsolescence seems fitting in relation to social media apps. Instagram's photo stream has to be constantly updated with new content and when we go to Facebook, we go there in search of *new* status updates, not something we have seen before. This constant stream of new content would not be possible were it not sourced from the millions of users of these applications. As Terranova (2004) points out, network economy commentators agreed already in the early 2000s on the fact that 'the best way to keep your site visible and thriving on the Web is to turn it into a space which is not only accessed, but somehow built by its users' (p. 91).

Despite imagery of care-free coders hanging out with friends and making fortunes almost by accident, producing content in the digital media industry has never perhaps been quite as fun as it seems (Fisher, 2015; Terranova, 2004). It is also vital to note that technology cannot be separated from the societal assemblage it is part of (Deleuze, 1997; Rodino-Colocino, 2006). Today the contradictions of digital labour can be seen in many places, as Christian Fuchs (2014) shows. These contradictions take various forms in places where material and immaterial supports for the internet and social media industry are produced. They can be seen in the mines of Congo, where minerals needed for producing smartphones are gathered in dangerous conditions; in massive Foxconn factories in Shenzhen China, where nets are hung around factory buildings to stop employees from jumping; or in California where highly paid but nevertheless exhausted programmers work 18-hour days and are faced with a never-ending 'crunch time'. On the other end of the production chain, Fuchs (2014) describes how social media platforms turn audience participation into commodities that are offered for sale to advertisers. He defines the time spent on these platforms as unpaid work time, thus resulting in the exploitation of the users' cognitive and affective work. At the root of this idea is the fact that while using social media platforms the users are not only passively consuming content, but actively creating something new by engaging in 'permanent creative activity, communication, community building and content-production' (p. 100). An illustrative example of this is Minna Ruckenstein's (2011) analysis of children's activity in the virtual world platform of Habbo Hotel.

Some theories of audience labour have faced criticism for seeing users exclusively as exploited and alienated victims. We agree with Caraway (2011) when he writes that it is important not to present capitalism as a closed cohesive system in which 'nothing unexpected ever happens; in which resistance is accommodated and crisis is contained' (p. 706). Users and content creators are constantly bending software and hardware to their own purposes, and searching for alternatives. Also, a voluntary aspect has always been important in internet content production. As Terranova (2004) puts it, free internet labour is 'not necessarily exploited labour' (p. 91). During the internet's early years, its communities relied on free labour, but it was often compensated by the pleasures of communication and exchange. It was also free in the sense that it was voluntary. From the user's point of view, it is often a question of reconciling two opposing forces, the need for self-expression and the possibility of making money. Choosing between the two can provoke anxiety, as Postigo (2016) shows while looking at the contradictions Youtube gamers face when thinking about 'going pro' and turning their hobby into a profession.

2.1. Smartphones and school

The idea of social media use as digital labour is particularly interesting with regard to school. It is tempting to suggest that smartphones and social media have brought digital labour inside schools. The presence of phones in schools today seems self-evident. They are either openly in use, sitting on the table, or hidden in pockets and bags, but still somehow present through their vibrations, sounds and occasional message checking (Hohti, Paakkari, & Stenberg, 2019). In our data students are constantly using social media platforms during school time, both during lessons and during recess. Students sitting inside a classroom with the teacher teaching produce a familiar image, but a majority of these students may simultaneously be updating social media sites and producing content on platforms run by multinational knowledge capitalism enterprises. Looking at school from the point of view of the 'mundane and seemingly trivial events' that fill the bulk of school hours, paraphrasing Philip Jackson's *Life in Classrooms* from 1968, the elements that make up this life now seem dramatically different (Jackson, 1990, p. 3; see also Fuchs & Sevignani, 2013).

Traditionally, schools have been places where students do not take part in directly productive work. As Gilles Deleuze (1992) proposes, in a disciplinary society each institution (such as school, hospital, or military) contains a specific function. In a disciplinary society school was the privileged site of education. While famously theorizing a shift towards what he calls control societies, Deleuze suggests that institutions lose their ability to contain activities. Work ceases to belong solely to the workplace and spreads into the entirety of life; education does not only take place in school and turns into individually controlled lifelong learning. In this way, Deleuze points to the difficulty of situating an activity into a given space. Work, education, play or leisure is no longer self-evidently where they used to be. Smartphone use and digital labour taking place in classrooms offers a concrete example of labour time spreading into the entirety of life, and school no longer being reserved exclusively for education.

2.2. School, welfare society and the "Nordic model"

If, on the side of young people, technology makes it possible for spaces of education and work to flow into one another, on the side of the school institution it creates other challenges. The Nordic primary and secondary school model has been, especially during the 20th century welfare state expansion period, built on the idea of the state as the provider of education. The comprehensive school system was created in 1950–1970 during the expansion of the welfare state. It was seen as a thoroughly state-led operation and private actors were not looked favourably on (Simola, Kauko, Varjo, Kalalahti, & Sahlström, 2016). In the Nordic perspective, there is some variation on this idea, with private actors having more room to operate in Sweden and less in Finland, but in general the state has either had a quasi-monopoly on the education of under-aged young people, or at least the ability to choose which private actors are accepted to join the predominantly public sphere of education. We are now seeing both of these aspects being challenged (see also Blossing, Imsen, & Moos, 2014).

The educational space of the classroom can be thought of as an assemblage (Deleuze & Guattari, 1987; Paakkari & Rautio, 2018) that consists of a number of actors. A brief listing of those actors and their change throughout the years can help us to grasp the significance of smartphones in classrooms. In addition to the students, teachers, desks, chairs, blackboards, projectors, pens and computers, smartphones have become a constant presence. By approaching the educational space as a material one (Hohti, 2016), we can see it being constituted by the elements that make it up – and therefore begin to grasp the significance of these elements.

The presence of phones in the classroom is particularly active since they are much more than mute objects. Many of school tasks are today performed through phones and applications such as dictionaries and writing platforms that have established a constant presence in the classroom (Juvonen, Tanner & Tainio, this issue). Teachers may create slides or tasks on Google docs, or ask the students to write their essays on other commercial platforms. This has become a popular and practical way to organize work and also decrease paper waste. However, at the same time it also, little by little, gives companies like Google a foothold inside the classroom, making these corporations active participants in the everyday life of schools (Greenfield, 2017). How Google organizes its menus or sharing functions on Google Drive suddenly starts making a difference in the classroom; not to mention the fact that the texts students produce feed into Google's database on language structures, helping to develop neural engines and AI applications. Even if the amounts do not seem big for a single user, Google is constantly skimming value (and searching for potential new ways of producing value) from the cognitive work its users perform on its platforms (Pasquinelli, 2009). And, it is worth noting that we have only begun to see what can be done with all the information these corporations collect – new ways of monetizing the information, getting it to really work for the companies, are constantly appearing (Greenfield, 2017).

While there is an intense discussion around the segregation of the educational space and how the idea of a common school for all is being eroded (Kosunen, Bernelius, Seppänen, & Porkka, 2016; Kosunen & Rivière, 2017; Varjo & Kalalahti, 2015), less is talked about how mobile technologies and computer platforms have acted as 'Trojan horses', and given tech companies an opportunity to participate actively in everyday classroom education. In some countries, like the U.S., these companies have already started to develop their own courses, offering the contents to educators as convenient packages (Greenfield, 2017). While our research schools have not gone as far, we recognize the tendency of trusting more and more of the education into the hands of commercial enterprises. It should however be emphasized that framing classrooms exclusively as places outside capitalism would be historically untrue. Commercial actors have long been part of the classroom through study materials and school infrastructures. While we suggest that there is newness in digital labour, it simultaneously reflects other trends in late capitalism which have their roots in earlier practices.

3. Data and deployment

The data in this article consists of ethnographic data, student interviews, and statistical data on students' phone use based on

video ethnographic material.[1] The seven students participating in the research were selected randomly from among the ones that volunteered. The research took place during three years, during which the students were 16 to 18 years old and in the first, second or third year of upper secondary school. The students are Finnish, and speak either Swedish or Finnish as their first language. We first contacted the schools, then went there to introduce the project and to look for interested students. After finding the volunteers, we met the students a few times before the video ethnographic phase began. After filming the first part of the video data, we returned to the school to discuss the material with the students. We showed them excerpts from the data and asked them to discuss these with us. This kind of a video-facilitated interview (Rusk, Pörn, Sahlström, & Slotte-Lüttge, 2015) was very useful and often resulted in students taking up issues we had not thought about. Discussions ranged from different smartphone applications to social media practices, privacy and students' strategies for using phones during school day.

The interviews are supported by ethnographic data consisting of video recordings, field notes, interviews and school documents. In addition to a traditional video ethnographic setup, each of our seven focus students had an application on their smartphone that allowed us to see and record their smartphone screens during the school day. The application was student-controlled, offering them the possibility of turning the mirroring on and off whenever they wished. During five weeks of data production we gained an extensive picture of how students actually use smartphones during their schooldays.

4. Analysis

The schooldays were divided into mostly 70-minute lessons and 15-minute recesses. The focus students all had specific ways of using phones, both during lessons and breaks. Similarly, teachers also had varying policies towards phone use. Students used their phones more on some lessons, less on others. Instances where teachers explicitly commented on student phone use were rare. As Sahlström et al. show (Sahlström, Tanner & Valasmo, this issue), phones are almost a perfect match to traditional classroom teaching. They suit the interactional organization of classroom extremely well, and therefore it seems that *both* students and teachers often benefit from phone use and do not object to it.

4.1. How and when are the phones used?

In the following, we can see a broad overview of how six participant students used their phones during classroom teaching, based on all the 18 days of data produced in the project. The numbers must be taken with two precautions. Firstly, writing lessons were a specific focus of the study and therefore slightly emphasized in the data. We generally noticed that during the lessons where essay writing took almost all of the time, students used phones considerably less that during other lessons. Secondly, the screen mirroring solution we used occasionally encountered technical difficulties and not all phone use could be observed. With one student's phone we had so many difficulties and so little comparable numerical data that we decided not to include it in these diagrams. In general, however, the following diagrams give a presentative picture of students' phone use in classrooms (Fig. 1).

Above, we can see phone use profiles from six students during classroom teaching. As can be seen, their classroom phone use varies considerably, from 4 per cent up to 22 per cent of classroom time. Even in this small take of students there are some who use phones relatively little in class, and some who use it for extended periods of time. However, we find the most significant thing to be that even those who use phones the least, actively used their phones around 5 per cent of classroom time. When we think about all the time we spend in classrooms during our school time, 5 per cent is a number definitely worth analysing. So, the least we could say is that there is something new in the classrooms and it as taking at least 1/20th of the students' time. Even this would make it highly meaningful.

To have an idea of typical phone use in upper secondary school classrooms in this research, we can examine one student's phone in more detail. The use patterns of the students varied, notably with regards to the extent of phone use and the amount of non-study-related use. However, many of the central elements we found are present in the following image. We can see that Snapchat and Whatsapp make up a majority of the phone use (70%). Facebook and Instagram are also present, but their share is significantly smaller (11%). In addition to this, the student uses a web browser (7%) and a news app (7%). Lastly, we can see the use of more directly study-related apps, such as the calendar (4%), and Wilma, the Finnish school timetable and notification app (1%) (Fig. 2).

We have chosen to use the concept of digital labour to analyse students' phone use. By looking at the above data in detail, we can see that digital labour takes many forms in smartphone apps. Even on the basic level of the phone's operating system, which today is manufactured and owned by either Google (Android) or Apple (Ios), each phone use provides these companies with information on users' daily use patterns, app preferences, location, movements and so on. The aim of the companies is then to turn this information into profit in current products and future designs. Therefore, on a very basic level, using a smartphone with a commercial operating system (Google supplies Android for free but it is not to be confused with freeware), already constitutes a case for digital labour. Looking further at the apps, there are some that fit the most obvious description of digital labour: apps like Instagram or Facebook that provide a platform for the users to fill with content. Without users' output these apps could not function. Media consumption via

---

Student 1 (1060 min)

10%
90%

■ Phone not in use   ■ Phone in use

Student 2 (1030 min)

8%
92%

■ Phone not in use   ■ Phone in use

Student 3 (1040 min)

22%
78%

■ Phone not in use   ■ Phone in use

Student 4 (590 min)

14%
86%

■ Phone not in use   ■ Phone in use

Student 5 (270 min)

22%
78%

■ Phone not in use   ■ Phone in use

Student 6 (190 min)
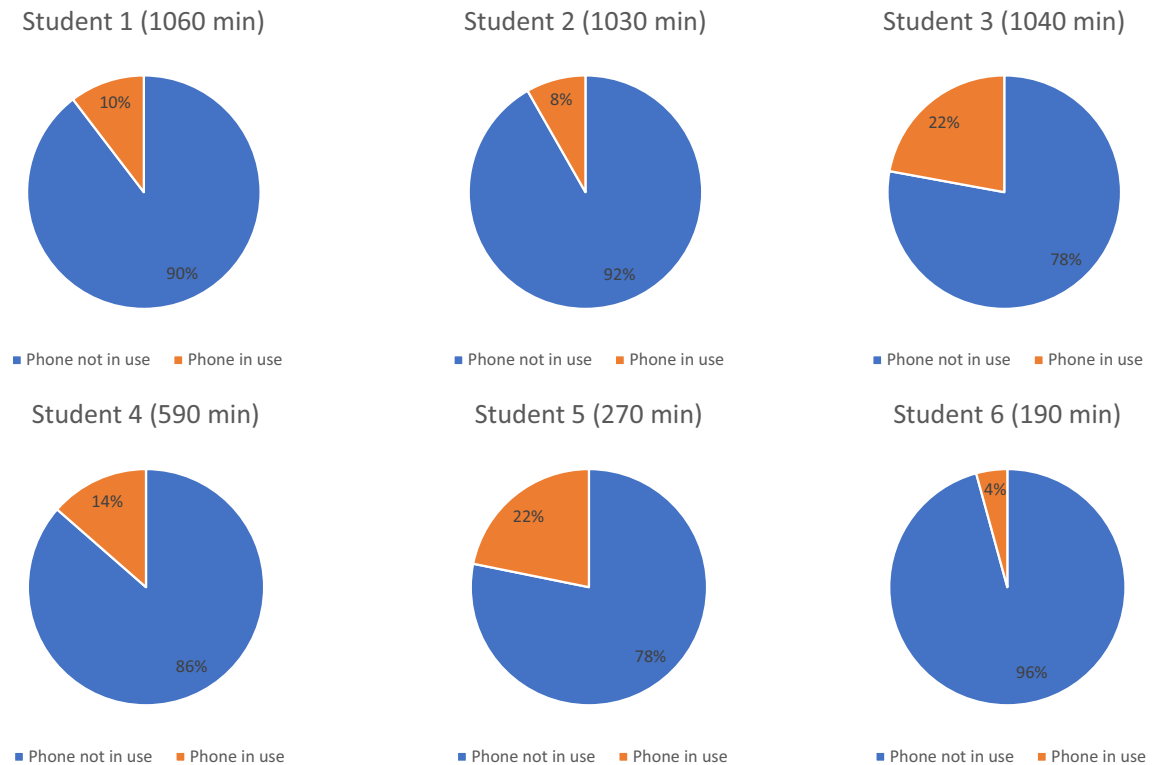

4%
96%

■ Phone not in use   ■ Phone in use

Fig. 1. The percentage of time the students spent using their phone in classroom. (Total amount of time each student was observed in brackets.)

■ Snapchat
■ Whatsapp
■ News app
■ Chrome
■ Facebook
■ Instagram
■ Calendar
■ Wilma
■ Other

1%
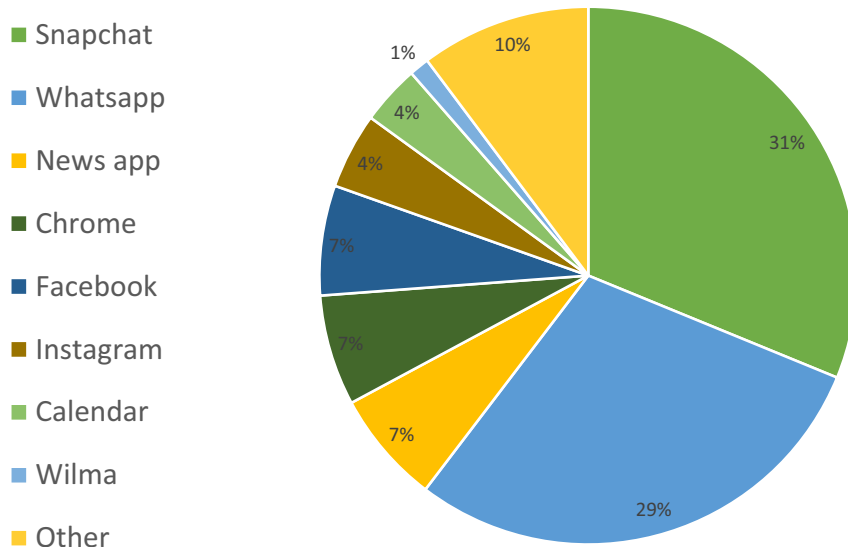10%
4%
4%
7%
7%
7%
31%
29%

Fig. 2. A look at the apps one of the students used in classroom.

a news app or a browser directly produces less to the companies, although apps and browser sign-ins are designed to identify and follow user habits. Wilma and calendar stay largely outside the sphere of digital labour, although as the calendar in this case was operated by Google, it again feeds into their global database. The two most used apps, Snapchat and Whatsapp, are used primarily for personal messaging. Whatsapp is less directly connected to digital labour, since it sells no advertisements and publishes no original content. It is however owned by Facebook, and there has been speculation that Facebook could connect its databases with Whatsapp, gaining an extensive picture of the users' social lives and networks, and enabling targeted advertising, but so far this has not happened. Lastly, Snapchat, even though used mostly for personal messaging, seeks to monetize its popularity by selling spaces for

outside content, for example news and gossip, and therefore, while not a textbook-example of digital labour, certainly contains some of its elements.

One way of looking at the phone activity is to differentiate between the levels of public content in apps. As mentioned, Whatsapp is mostly private and used to communicate between friends and friend groups. Snapchat is predominantly used for the same purposes but also contains an option of publishing "stories" that are visible to all of one's followers. It also contains consumable public content. Instagram lets you see content by the people you follow and lets your followers see your content, except if the account is public in which case all users can access it. Tumblr is generally public and, unless otherwise specified, content is available to everyone. Therefore, differentiating between the different levels of public-private, most of the students' content veers towards the private end of the scale but there is also a significant amount of public content. However, we should not over-emphasize the distinction between public and private. Even when users are operating in a seemingly private sphere, they are indirectly tied to tech companies' value formation: services like Whatsapp and Snapchat gain their value by virtue of having many users, of being popular. In this sense, even the users who don't provide public content, participate in making the platform popular and valuable. A significant portion of the phone use takes place within a sphere that can at least potentially be monetized.

4.2. Why are the phones used?

To most of the students, the overwhelmingly most common use of the phone was messaging. Whatsapp and Snapchat were commonly among the two most popular apps. Students also echoed this in our interviews: messaging was seen as the most important function of the phone.

Interviewer 1*:* Which would you miss more if you had to be without a phone: being able to kill time or having contact with others?
Edward: I think I would rather take Snapchat and Whatsapp than for example Instagram and the like.
Interviewer 1*:* What about if you had to choose between Youtube or Snapchat, you know, having contact or having content?
Edward: I would definitely take contact before content.
Karin: Contact is content. [Laughter]
Benjamin: Yes, I'm with you on that. I think that in social life, with or without the phone, it's not such a big difference in what you do. As long as you do it with the right people, things mostly turn out to be fun. So, for me it would be much much more important to have Whatsapp, Snapchat, Messenger and so on, to have contact with others and to be able to share what I do with someone else at the same time as they share what they are doing with me. […]

In the above interview, students emphasize the important social function of the phones. The phones help in sharing life and maintaining relationships with others. They create agentic capabilities that extend out of the classroom and school space (Hohti et al., 2019), making it possible to loosen the spatial and temporal limitations of the classroom and be able to be "with the right people", as Benjamin says. In this sense, the phones become tools of adulthood, helping to move from the limited space of childhood to a space where you can decide for yourself whom you want to share it with. When we talked with the students about what phones meant to them in school, their significance as symbols of adulthood also came out in relation to all the years of primary and secondary school when phone use had been more severely limited. To not be able to use phones would feel like "my freedom was being taken away", as Benjamin said. The phone was seen as something that was necessary for organizing the school day and taking care of running errands.

"With the phone I have access to everything. If I didn't have the phone I should have a calendar with me constantly, to check out what I'm supposed to be doing, for example. It's simply my freedom to do as I like."

(Benjamin, student interview)

The role of the phone as something that allows one a space and time of their own was emphasized. The phones offered a possibility to experiment with the temporalities and spatialities of school. Young people commonly struggle to find a space for themselves, and turn to internet and social media that can provide it (Boyd, 2014; Rusk, this issue). Often the spaces of young peoples' lives offer little room for privacy. We have written elsewhere (Paakkari & Rautio, 2018) on how phone use can also be read as resistance and invention against the disciplinary power mechanisms of school. The fact that not only teachers but also students bring content to the classroom (even in cases where it is personal and via smartphone screens) may help to emphasize the co-creative aspect of classrooms – always present but sometimes less obvious. However, the spaces smartphones give access to are increasingly turning into sites of digital labour. Herein lies the paradox we find in the data: students turn to the phones because they can challenge the spaces and agencies that have traditionally existed in classrooms, but as mobile technologies are the central growth engines of contemporary capitalism, the spaces they offer are increasingly corporate spaces, spaces of digital production and labour.

"The phone becomes a little relaxing moment, even if it maybe isn't really relaxing to check out a bunch of news for example. But if you have like five or six different subjects a day, and you know that for example biology is not necessarily my favourite subject, I'm just too tired to stare at the board for 70 minutes trying to hang on in something I don't really care about and that I'm not gonna do more courses on."

(Benjamin, student interview)

As Benjamin alludes to, the relaxation the phone offers may not always be so relaxing. Students spoke of getting stuck reading news, waiting for something to happen, a notification to pop up, for the phone to provide a distraction. "When you're tired and just can't concentrate, you really try to find something on the phone, and you scroll through Instagram and Facebook and you don't have anything left to do but you're still there and keep on searching for something that must have happened", says Maria. Another thing

that was occasionally found irritating was advertising. Many of the most popular apps (Snapchat, Instagram, Facebook) rely on ads for revenue and students had to negotiate with the commercial cues this inserted into their phone use.

> *Interviewer 1*: Do you find the ads annoying?
> *Karin*: Well it would be nice if they didn't exist. At least not so many. I do think you sometimes get irritated by them. But I think I'm so used to them that I don't often think about it, but I really do get irritated and I'm like 'Go away!'. Especially pop-ups that come really often and are so annoying.

While they were seen as annoying, ads were also something that were not going to go away, that you just had to accept. While this gesture implies resignation, we also read is a recognition of the thoroughly commercialized nature of phone use. In our view, students approached phones as something that were inherently commercial, even while this commercialism co-existed with other features.

The question of whether mobile phone use and the cases of digital labour presented in this paper are exploitation is important. As Eran Fisher (2015, p. 1109) mentions, the research on the critical political economy of the internet has occasionally been criticized 'for being too analytical and too removed from the lifeworld experiences of users'. There has been a gulf between theorists claiming that exploitation and alienation are 'objective realities and that users' consciousness is therefore irrelevant to validating them' (Fisher, 2015, p. 1109), and on the other hand, those who do not see digital labour as exploitation because of its empowering aspects (on this debate, see Jenkins, Ito, & Boyd, 2016). Our views fall closer to the first group, since the platforms are wholly dependent on their users. The app economy can be described as an effort to create platforms or services that can tap on to prevailing user desires – of finding out what users are interested in and trying to monetize it (Greenfield, 2017). Also, an important point is that the use of the platforms is often voluntary only in name: when the whole class is communicating in Whatsapp, the social cost of remaining outside can be excessive. The question of exploitation is complex, but we argue that there is a case to made for it since, at the very least, using these apps engages one in a game where the service providers are seeking potential ways of turning user activity into profit, even when they have not yet found them.

To answer these questions, research should turn more closely to the opinions of the users. In Fisher's (2015) study of a class action suit against Facebook's sponsored stories, users were increasingly seeing their social media use as value production. Showing how users challenge the way in which enterprises benefit from their social networks and media use, Fisher concludes that 'audience interpretation of social media is that of a productive space where value is created by users' (Fisher, 2015, p. 1119). An interest in the economic value of their user activity is perhaps emerging also in our interviews. Students recognize that commercial aspects are irrevocably part of mobile phone use, as in the case of omnipresent ads, and that this phone use has to be negotiated with these aspects in mind.

5. Discussion

The analysis of our data suggests that phones are a consistent and permanent presence in these Finnish upper secondary schools. Students have many different ways of using phones, but even phone use that takes up 20 per cent of classroom time is common. A considerable part of this phone use can be identified – directly or indirectly – as digital labour. Furthermore, we open up for discussion the idea that public schools are no longer controlled by only the state, but increasingly and implicitly by major international corporations such as Google, Facebook and Apple.

In the light of our data, typical phone use at school does not seem to be related to teaching. This observation has also been echoed in other research on technology in school. There is a large body of work detailing the difficulties of integrating internet connected devices meaningfully into learning activities (Blikstad-Balas, 2012; Cuban, 2001; Selwyn, 2011). In our data, the main uses of phones were connected with messaging and social media. However, there was some school related use, as students used dictionaries, calculators, calendars and study organizing app Wilma. Students themselves saw that messaging and sharing one's life with friends were the most important uses. They also emphasized the organizational benefits of having a smartphone, with regards to accessing calendar and timetables. Students were open about the significance of the phones as symbols of adulthood, and the idea of not having phones was uniformly rejected. Still, some questioned the meaningfulness of spending so much time on the phones. While students strongly felt that phones should be allowed in upper secondary school, they were ready to discuss their uses, ultimately feeling that students themselves should be able to decide.

There is no need to categorically demonise smartphone use in schools. As Caraway (2011, p. 706) writes: 'Technology *conditions* but does not *determine* social praxis.' In spite of all the algorithmic optimisation and app design aimed at maximising users' active screen time, phone use is always negotiated in a social context and can take many forms. The enjoyment of connecting with friends and the possibility of maintaining various social networks inside a hierarchical and controlled school space should not be underestimated. On the other hand, the idea of social media as providing young people with a space of their own is clearly being questioned as these spaces – at least in the applications discussed in this paper – are increasingly those of productive labour for the benefit of enterprises.

As Blikstad-Balas (2012, p. 91) writes while looking at students' internet use during classroom teaching, 'mere access to information in itself does not lead to improved education or to fundamental change'. We agree with this, but the idea of digital labour on smartphones suggests that perhaps we could look at the situation from another perspective – not focusing on what the students have access to, but *what has access to them* through these technologies? From this point of view, our findings suggest a fundamental change: digital labour has become a permanent part of life in schools. And perhaps not just an addition but something that changes school life as a whole from a distinct phase of education to a more blurred space including actual productive labour. Through producing content for social media, students participated in corporate spaces (see Ruckenstein, 2015), and did so throughout their

schooldays. As digital labour becomes a constant feature of school life, we can no longer think of schools as purely educational and intentionally governed spaces – if we ever could. The nature of school work thus can and should be studied in relation to the simultaneous digital labour the students are engaged in at a daily level. For the sake of contemplation – also critically addressed to practices of schooling – schools and education could be approached as if part of the array of labour-demanding applications young people are working for. What or who would be the audience of the school-application? To whom would content be produced and performed? And what would the content be?

And from a material point of view: if we look at the classroom as an assemblage of elements, we can infer that those who control the materials, also control schooling. In other words, it is important to ask who controls the material space of the classroom and who has access to it. In light of our data it certainly seems that the role of commercial enterprises is expanding. Technology companies are increasingly crafting themselves a space inside the Nordic school system that has historically been built on the idea of strict control of commercial actors (Blossing et al., 2014; Simola et al., 2016). This may force us to ask important questions about the function of school and its place in the society, about whose responsibility schooling actually is and who gets to decide on the actors that participate in schooling, and how much room can commercial enterprises be afforded. The exact consequences of these processes are hard to predict, but the contrasting principles behind them alone make them worthy of careful examination.

6. Conclusion

We conclude by claiming that elements of digital labour exist intertwined within the school day and are reflected in students' phone use. Commercial spaces and traces have arguably long existed in school space through brand logos, materials, educational equipment and sponsorship deals. However, the infiltrating of corporate digital space to schools has taken place in an even more implicit way, riding on the notion that the apps provide young people spaces of their own inside the disciplinary school space. While smartphones can be seen as offering the students the role of unpaid workers, they also bring a new group of commercial actors inside the classroom space. Whether their goals and aspirations can be combined with the Nordic idea of a common school for all, remains an open question.

Acknowledgements

References

Blikstad-Balas, M. (2012). Digital literacy in upper secondary school. What do students use their laptops for during teacher instruction? *Nordic Journal of Digital Literacy, 7,* 81–96.

Blossing, U., Imsen, G., & Moos, L. (Eds.). (2014). *The Nordic education model. 'A school for all' encounters neo-liberal policy.* Dordrecht: Springer.

Boyd, D. (2014). *It's complicated. The social lives of networked teens.* London: Yale University Press.

Caraway, B. (2011). Audience labor in the new media environment: A Marxian revisiting of the audience commodity. *Media, Culture & Society, 33*(5), 693–708. https://doi.org/10.1177/0163443711404463.

Cuban, L. (2001). *Oversold and underused: Computers in the classroom.* Cambridge: Harvard University Press.

Deleuze, G. (1992). Postscript on the societies of control. *October, 59,* 3–7.

Deleuze, G. (1997). *Negotiations 1972–1990.* New York: Columbia University Press.

Deleuze, G., & Guattari, F. (1987). *A thousand plateaus. Capitalism and schizophrenia II. Translated by Brian Massumi.* Minneapolis: University of Minnesota Press.

Fisher, E. (2015). Class struggles in the digital frontier: Audience labour theory and social media users. *Information, Communication & Society, 18,* 1108–1122. https://doi.org/10.1080/1369118X.2015.1018300.

Fuchs, C. (2014). *Karl Marx and internet studies.* London: Routledge.

Fuchs, C., & Sevignani, S. (2013). What is digital labour? What is digital work? What's their difference? And why do these questions matter for understanding social media? *tripleC, 11,* 237–293. https://doi.org/10.31269/triplec.v11i2.461.

Greenfield, A. (2017). *Radical technologies. The design of everyday life.* London: Verso.

Hardt, M., & Negri, A. (2001). *Empire.* Cambridge, MA: Harvard University Press.

Hohti, R. (2016). Classroom matters. Research with children as entanglement. Helsinki: University of Helsinki.

Hohti, R., Paakkari, A., & Stenberg, K. (2019). In P. Rautio, & E. Stenvall (Eds.). *Social, material and political constructs of arctic childhoods – An everyday life perspective* (pp. 85–102). Dordrecht: Springer Dancing with digitalities? Exploring the human-smartphone entanglements in classrooms.

Jackson, P. W. (1990). *Life in classrooms.* New York: Columbia University Press.

Jenkins, H., Ito, M., & Boyd, D. (2016). *Participatory culture in a networked era.* Cambridge: Polity Press.

Juvonen, R., Tanner, M. & Tainio, L., 'Being stuck'. Analyzing text-planning activities in digitally rich upper secondary school classrooms.

Kosunen, S., Bernelius, V., Seppänen, P., & Porkka, M. (2016). School choice to lower secondary school and mechanisms of segregation in urban Finland. *Urban education.*. https://doi.org/10.1177/2F0042085916666933.

Kosunen, S., & Rivière, C. (2017). Alone or together in the neighbourhood? School choice and parents' access to local social networks. *Children's geographies, 16,* 143–155. https://doi.org/10.1080/14733285.2017.1334114.

Lazzarato, M. (1996). Immaterial labor. Retrieved from http://www.generation-online.org/c/fcimmateriallabour3.htm.

Paakkari, A., & Rautio, P. (2018). 'What is puberty, then?' Smartphones and Tumblr images as de/re-territorialisations in an upper secondary school classroom. *Discourse: Studies in the cultural politics of education.*. https://doi.org/10.1080/01596306.2018.1451304.

Pasquinelli, M. (2009). Google's PageRank algorithm: A diagram of the cognitive capitalism and the rentier of the common intellect. In K. Becker, & F. Stalder (Eds.). *Deep search.* London: Transaction Publishers.

Postigo, H. (2016). The socio-technical architecture of digital labor: Converting play into YouTube money. *New Media & Society, 18,* 332–349. https://doi.org/10.1177/2F1461444814541527.

Rodino-Colocino, M. (2006). Laboring under the digital divide. *New Media & Society, 8,* 487–511. https://doi.org/10.1177/2F1461444806064487.

Ruckenstein, M. (2011). Children in creationist capitalism. *Information, Communication & Society, 14,* 1060–1076. https://doi.org/10.1080/1369118X.2011.565781.

Ruckenstein, M. (2015). Playing Nintendogs: Desire, distributed agency and potentials of presumption. *Journal of Consumer Culture, 15*, 351–370. https://doi.org/10.1177/2F1469540513499225.

Rusk, F. Digitally mediated interaction as a resource for co-constructing multilingual identities in classrooms.

Rusk, F., Pörn, M., Sahlström, F., & Slotte-Lüttge, A. (2015). Perspectives on using video recordings in conversational analytical studies on learning in interaction. *International Journal of Research & Method in Education, 38*, 39–55. https://doi.org/10.1080/1743727X.2014.903918.

Sahlström, F., Tanner, M. & Valasmo, V. Classroom smartphone use and student and teacher participation in plenary teaching in classrooms.

Selwyn, N. (2011). *Education and technology. Key issues and debates.* London: Continuum.

Simola, H., Kauko, J., Varjo, J., Kalalahti, M., & Sahlström, F. (2016). *Dynamics in education politics. Understanding and explaining the Finnish case.* London: Routledge.

Terranova, T. (2004). *Network culture.* London: Pluto Press.

Varjo, J., & Kalalahti, M. (2015). The conceivable benefits of being comprehensive: Finnish local education authorities on recognising and controlling the social costs of school choice. *European educational research Jjournal, 14*, 312–330. https://doi.org/10.1177/2F1474904115589036.