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UNDER THE TEACHER'S RADAR

Literacy practices in task-related smartphone use in the connected classroom

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Abstract

In this article, we explore the role of smartphones in the classroom and how they interact with teaching. Drawing on examples of literacy events, we show how the students use the smartphone as a resource to exercise power and influence in the literacy practices in which they participate in the classroom, in relation to a teaching content. These actions take place without the teachers being aware of them, and thus these processes dismantle the teacher's authority in terms of access to, and overview of, the diversity of texts that are managed by the students in the classroom. The article concludes that it is evident that digital tools in general, and smartphones in particular, change the role of the teacher and the school, and that the students' design of texts places new or altered demands on students as well as teachers.

Keywords: digital media, smartphones, teaching, literacy

1. INTRODUCTION

The digitalisation of society at large has in many ways had an impact on teaching and thus also the literacy practices which are developed in today's classrooms. Large investments have been made to introduce digital tools like laptops and tablets, with hopes that they will become important instruments for teachers and students to search, collect, compile and process information and to communicate thoughts and ideas. As Davies (2017) points out, these investments to give every student access to small, flexible and multi-use machines are based on a vision about the educational potential which they entail. At the same time, Davies argues, it may sometimes appear as a vain attempt by the school to gain control over the flood of new technologies which the connected society has brought, where constant, around the clock

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access to different types of digital tools has become an indispensable part of people's everyday life. Above all, digital development has meant that an increasing proportion of the population have access to their own smartphone, not least young people. In Sweden, for example, close to every upper secondary school student (98%) has access to their own smartphone (Alexandersson & Davidsson, 2014) and many studies also show that smartphones are used, more or less openly, by students during lessons (Andersdotter & Schmidt, 2013; Forsman, 2014; Sahlström et al., 2015).

While public investments in one-to-one access to computers and tablets have been seen as an important prerequisite for school development, the use of smartphones in the classroom has proven to be significantly more controversial. Although today's smartphones can be used for almost the same purposes as computers and tablets, more or less related to education, the debate has primarily viewed smartphone use as a disturbance. Research on the presence and use of smartphones in the classroom has, for example, focused on the debate on smartphones in classrooms (Ott, 2017), on the connection between bans on smartphones and students' academic performance (Beland & Murphy, 2015), and the use of smartphones and its effect on students' learning (Kuznekoff & Titsworth, 2013; Wei, Wang & Klausner, 2012). The results of this research do not paint a strictly coherent picture, but rather the opposite. There are studies which show that the use of smartphones can both impair students' academic results (see e.g. Beland & Murphy, 2015) and have positive effects (see e.g. Tyma, 2011; Kuznekoff, Munz & Titsworth, 2015). In a Swedish context, Olin-Scheller and Tanner (2015) have presented a study which shows that smartphones do not primarily appear as a disturbance in the classroom, but rather they are used during the breaks or "gaps" which arise during the course of the lesson when, for example, the intensity subsides or when the student is waiting for new instructions. The smartphone can then be understood as a way for the student to take the initiative and create an opportunity to participate in different communicative contexts which exceed the participation opportunities offered by the teaching (Richardson, 2013; Sahlström, Tanner & Valasmo, forthcoming; Tanner et al., 2017).

However, knowledge about the role of smartphones in the classroom and how they interact with teaching is still relatively limited, especially in relation to the teaching content in question. This is something which we focus on in this article, where we regard the use of smartphones as a resource among others in the literacy practices of the classroom. Our focus in this article is on neither e-learning perspectives nor *what* the students specifically learn. Instead our interest is directed towards the practices and strategies that are created when the smartphone is made into an available resource in the classroom. Unlike the use of the computers and tablets provided by the school, the use of smartphones is usually based on the student's own initiative. Even if this use often appears to have social and relationship-creating purposes via different social media (cf. Olin-Scheller, Tanner & Öhman, 2018), the smartphones are also close at hand for the students to use as a resource in their schoolwork. More precisely, the aim of our article is to study what happens when students use smartphones in classroom literacy practices as a resource in relation to the

teaching content. We are interested in the process which is put in play during students' spontaneous and self-initiated use of smartphones in the classroom, and we focus on the strategies and literacy practices that evolve in these processes.

2. THEORETICAL AND METHODOLOGICAL APPROACH

In our study, we regard the use of smartphones and other digital tools as resources for communication and interaction concerning digital texts. We use the literacy concept in a broad sense, as described within the field of New Literacy Studies, based on questions of how, why and with who people communicate and interact, with use of a wide repertoire of sign systems and different technologies (Barton, 2007; Street, 1984; Gee, 2010). Our understanding of literacy practices in a connected classroom is also based on the research field of New Literacies (Coiro et al., 2008; Lankshear & Knobel, 2011; Leander, Philips & Taylor, 2010), which specifically looks at literacy practices in relation to new technologies, for example digital tools. A core concept in the analysis is literacy events, that is, observable situations where texts in a broad sense influence the interaction between people (Barton, 2001). Recurring literacy events within different social contexts will, over time, shape routines and patterns that can be described as literacy practices, a concept that can be used to understand the wider social functions of literacy (Barton & Hamilton, 1998). Heath and Street (2008) argue that these types of socio-cultural literacy practices also include values, attitudes and social relationships, and that they are situated in wider social structures, for example in a circle of friends or in a school practice (see also Ivanič, 2004).

A social understanding of literacy also means that questions regarding the relationship between power and language are brought to the fore, something which has been particularly emphasised in studies on critical literacy (see Comber, 2015; Janks, 2010, 2012; Luke, 2012). According to Luke, critical literacy is primarily about:

> [U]se of the technologies of print and other media of communication to analyze, critique, and transform the norms, rule systems, and practices governing the social fields of everyday life (Luke, 2004, in Luke, 2012, p. 5).

According to this definition, critical literacy is about critically examining and looking beyond what happens at the surface in the use of written expressions for different purposes, as well as posing critical questions about whose voices are being heard and whose interests are being marginalised. In essence, the starting point is that there is a mutual relationship between language, power and creation of meaning, and that the literacy practices which the students encounter in the classroom are not neutral, but always represent a perspective with a more or less explicit ideological approach. These literacy practices largely reproduce institutional traditions which can be recognised between different classrooms over a long period of time. But at the same time as the literacy practices of the school reproduce school-specific ways to make use of texts and written language, the practices are also in a constant state of change which the students also help to create through their participation.

From a power perspective, the relationship between different participants' influence is thus not static, and even if the students are often expected to act in accordance with traditional practices, the students' position should not be understood as powerless. Firstly, the education conducted can give students access to several different discourses and encourage them to be active, and secondly, students can participate also from a subordinated power position, and as such change the literacy practice in the classroom (see e.g. Davies, 1984; Wyndham, 2013).

Janks (2010) has developed a model which we find useful as an analytical framework and which emphasises the relationship between language and power, and includes four mutually independent concepts: domination, access, diversity and design.

Domination refers to how dominant relationships are both preserved and re-created through different literacy practices, and the concept has a direct connection to questions of power. It concerns the question of whose interests are being served through the literacy practices that the students encounter in the classroom, and whether or not the students have or are given *access* to these. At the same time, Janks observes the presence of a so-called access paradox, that is, emphasis on, and teaching of, dominant forms of language, discourses and knowledge which may lead to these being maintained while the marginalised forms are excluded.

The concrete literacy events in which the students are involved may thus both facilitate and impede *diversity*. Janks' diversity concept includes reading and texts in the broadest sense and enables analysis of the diversity of expressions and knowledge- and experience-based divergences which transpire in the students' literacy events. Finally, the *design* concept includes an idea about agency, and the students' own creative force and opportunity to both critically observe and participate in the literacy practices of the classroom, by creating their own and new versions of texts, as well as questioning, challenging and widening the dominant discourses that surround them.

In this article, we analyse three literacy events which have been selected based on the fact that they represent different situations in which students spontaneously, and on their own initiative, use their smartphones in relation to the teaching content. These examples are part of broader literacy practices in the classroom, and the information-seeking processes that take place in these examples of literacy events (and which represent quite frequent in the data material) have significance and are important in relation to the teaching that is being conducted and the learning intended to take place. Based on our definition of literacy events as observable occasions of people's interaction with and around texts (Barton, 2001; Heath, 1983), we focus our analysis on how these literacy events are shaped in interaction between students, texts and the surrounding environment. We pay extra attention to the way the participants make relevant aspects of power and norms in the literacy practices of which the smartphone use becomes a part. In the analysis we use conversation analysis (CA), which means that we view social interaction as constituted in face-to-face interactions, possible to investigate turn-by-turn in the sequential ordering of

human cooperation in naturally occurring encounters between people (Hutchby & Wooffitt, 2008; Schegloff, 2007; Sidnell & Stivers, 2013). In our analysis, we understand both verbal and non-verbal language as resources that people use to produce and reproduce social reality; thus not only talk but also other semiotic resources are seen as constitutive of the activity being analysed in this article (Asplund, 2016; Goodwin, 2000). CA allows for in-depth exploration of how discursive literacy practices are made relevant from the participants' perspective, and how literacy practices evolve as social practices in people's everyday encounters (Davidson, 2012; Freebody, 2013; Tanner, 2017). CA could be described as an approach that starts with the situated interaction, and works its way out, and here we take the situated literacy event involving smartphones as a starting point and use it as a means of understanding how the interactions in these literacy events are connected to broader social literacy practices and power relations.

3. METHOD AND EMPIRICAL DATA

The empirical material of this article has been gathered from a larger video ethnographic study on smartphones in upper secondary classrooms, focusing on their use of different social media, applications, search engines and links, and the role these play in relation to the literacy practices of the classroom. This method means that we have specifically studied classroom activities including 1–2 focus students in each class in a total of 6 upper secondary school classes, which has generated a total of 45 hours of video material.

The students included in this article come from three different upper secondary school classes in year 3 of a preparatory programme for higher education, i.e. students aged 18-19. The school is situated in a small town and each class consists of about 25 students (the gender balance is relatively even). All students were informed about the aim and implementation of the study and were asked to participate either as one of several students in recordings from the classroom or by also allowing the researchers to record their use of smartphones and computers. As a next step, we documented the students' activities continuously over a period of one school year, through video recordings with three different perspectives. One video camera has looked at the focus student's physical interaction in the classroom where we can follow his or her interaction with the teacher and fellow students. Another camera has captured when the student is sitting by his or her desk writing, and especially when typing on the personal computer which the school provides for each student. As a third data source, we have used wi-fi technology to mirror the student's smartphone screen on a researcher's computer, which we have then also recorded and saved as a video file. The three different data sources have been compiled into a video that shows all three perspectives simultaneously.

It is most common that the smartphones are used for different social, non-teaching-related, purposes via SMS or apps like Snapchat. However, it happens relatively frequently that the students use their smartphone to make brief notes, take a photo

of a text or search for education-related information online with the help of a search engine or an online encyclopaedia. The latter activity is the most common teaching-related activity and it is examples of these types of situations which have been selected for analysis. It is also worth noticing that the examples we have selected reflect a classroom practice that is highly visible throughout our entire material. Based on interviews with the focus students after the filming, their respective smartphone use reflects typical behaviors during lessons. As we have stated above, and as many other studies also have shown, smartphones are used, more or less openly, by students during any lessons. In our material, there are no examples of teachers initiating the students' use of smartphones in relation to the teaching; rather the occasions which we have been able to identify are all examples of student-initiated use of smartphones as a resource for information seeking. These sequences have then been transcribed in detail according to the conventions of CA, where we have put great emphasis on the role of the phone in the sequentially ordered interaction, and on the way the students in their interaction orientate towards the literacy practices of the classroom. As a second step we have analysed how different power aspects are made relevant in the literacy practices of the classroom, which we discuss using the concepts access, domination, diversity and design.

4. ANALYSIS

4.1 Available resources

In our first example, we meet Jacob who is involved in an assignment in Swedish. He and his peers have been given the task by the teacher to analyse two texts. One is a text with lyrics and the other is a poem. The students have been assigned to read and analyse the two texts on their own during most of the lesson. The classroom is quiet and when Jacob, in the transcribed sequence below, talks to his peers, he does so in a low, whispering voice. After having first briefly discussed the texts and the assignment with the peer next to him, Anna, and then read through the texts more carefully, Jacob turns to Anna once again and asks her if she knows what "haiku" is and if it can be connected to poems and how it is structured. Anna tells him that she is not familiar with the term and Jacob goes back to reading the poem. This time he gently claps his hands as if he is trying to find a rhythm and after a while he makes contact with the student sitting in front of him, and it is this situation we enter into below:

Example 1: "didn't make it past the first sentence"

Excerpt 1:1.

```
1    Jacob:    ((pokes Carin's back with his pen))
2    Jacob:    heter det haiku
               is it called haiku
3              (1.2)
4    Jacob:    när man kör (x) heter det haiku
               when you do (x) is it called haiku
5              (0.5)
6              hette det nåt sånt där (.) sån här
               diktgrej
               was it called something like that (.)
               this sort of poem thing
7    Carin:    vad hette det
               what was it called
8              (0.6)
9    Jacob:    haiku (.) eller nånting
               haiku (.) or something
10   Carin:    guu:d jag kommer inte ihåg det där
               jee:z I can't remember that stuff
11   Jacob:    [ ah:::   ]
12   Anna:     [he he he ]de är bara du som (x)
               [he he he ] it's only you who (x)
13   Jacob:    jag får googla ((tar upp sin
               mobiltelefon))
               I'll google it ((picks up his
               smartphone))
14   Carin:    stilpoäng (x) behöver du inte å få
               you don't have to get brownie points
15   Jacob:    google (x)
               google (x)
16             (1.0)
17   Carin:    he he he
18   Jacob:    även om: det är screen mirror ((tittar
               upp
               even if: it's screen mirror ((looks up
19             mot Anna))[fuck the police      ]
               at Anna)) [fuck the police     ]
20                       [((starts the phone))]
```

The example begins when Jacob takes the initiative to ask his peer Carin, who is sit-
ting in front of him, about the name of the poetic form haiku. He catches her

attention by poking her back with his pen and then asking in line 2 *is it called haiku*. In lines 3 to 6 we can observe how he tries to clarify his question, which using a conversation analytical term can be described as a self-initiated reparation (Schegloff, 1992), by first developing *when you do (OH) is it called <u>haiku</u>* (line 4) and after another pause *was it called something like that (.) this sort of poem thing* (line 6). Through this formulation, "this sort of", Jacob indicates that his question refers to a concept which they have common experience of, that it has been brought up by a teacher previously. However, it turns out that Carin does not recall this; first she asks him to repeat the name (line 7) and then concludes when Jacob repeats it (line 9) that she does not remember (line 10). At the same time as Jacob exclaims *ah::* (line 11) with an amused tone of voice, Anna who is sitting next to him laughs and says *it is only you who* (line 12). By doing so, she unites with Carin and turns Jacob into the only one out of the three who remembers this concept, which is further enforced through Carin's remark about *brownie points* (line 14). However, Jacob stands his ground and announces that he will use Google to find out more. Throughout this turn-taking, the participants apply a playful tone of voice (see lines 12 and 17), which has a softening effect on the opposition which is constructed where Jacob is positioned as somewhat over-ambitious in relation to his friends who are unfamiliar with the concept.

Figure 1. Searching for haiku

During the following lines in the transcription, 21–29 (not shown in the excerpt), he sits quietly and scrolls on his mobile while the students next to him are busy with other activities. His search leads him to Wikipedia and an article on haiku which he looks at (see Fig. 1). After about 9 seconds, when he has read a little bit, he once again initiates a conversation with the girl next to him, Anna:

Excerpt 1:2.

```
30   Jacob:    yes det är så#
                yes I was right#
```



```
                #
31   Anna:     #gott
                #sweet
```



```
                  #
32     Jacob:   haiku
                 haiku
33              (1.0)
34     Jacob:   stavelser
                 syllables
35     Anna:    °ha° ((lutar sig tillbaka))
                 °ha° ((leans back))
36     Jacob:   a:ha::((ler)) aha aha aha
                 a:ha:: ((smiles)) aha aha aha
37              (11s)/((looks at his mobile. puts
                 it down.
38              looks at the paper on his desk and
                 claps his
39              hands rhythmically at the same
                 time as he
40              moves his lips))
41     Jacob:   nej fa:n
                 no da:mn
42              (0.6)
43     Jacob:   det var det inte (.)skit.
                 I was wrong (.) shit
44              (1.1)
```

```
45     Jacob:                    sprack i första me-
                  ningen [he he he]
                  didn't make it past the first sen-
                  tence [he he he]
46                ((looks at Anna))
47     Anna:
                  [he he he]
48     Jacob:     ((claps his hand and looks down at
                  the paper, smiles))
```

In line 30, Jacob shows that his idea about haiku was confirmed and he turns to Anna, clenches his fist and exclaims with emphasis *yes! I was right*. Anna agrees that it is *sweet* (line 31), leans back and looks at Jacob's mobile screen which he is showing to her. Together they now turn their attention to the text on the screen and Jacob repeats the name *haiku* (line 32) and points out, after a pause (line 33), that it is about *syllables* (line 34). Anna confirms this with a weak *ha* (line 35), whereupon she leans away from the screen again. Jacob smiles and exclaims with emphasis *a:ha::* followed by several repeated *aha aha aha* (line 36) and, as such, indicates that he is pleased that he was right. Then Jacob turns his attention to the paper in front of him on the desk and shortly after that brings his hands together and gently claps them rhythmically at the same time as he moves his lips (see lines 37–40). It appears as if he is testing his hypothesis that the poem he is analysing could be a haiku, which is supported by him exclaiming with emphasis *no damn* in line 41 where he is rejecting the hypothesis. He does not receive any response from his friends but continues to comment *I was wrong (.) shit* (line 43), and when he still does not get any response (line 44) he says *didn't make it past the first sentence he he he* (line 45). As he is saying this he looks at Anna who joins in his laughter. Jacob then returns to the paper and repeats the clapping movement, before he and Anna start a new conversation.

4.2 Expanding text worlds beyond the classroom

Example 1 shows a literacy event where a previously discussed teaching subject, the poetic form haiku, arises in a new situation on the student's own initiative. In one aspect, it could be argued that from Jacob's perspective, there is a lack of resources in the classroom; there is no textbook available and his peers are unable to help him. Nor does Jacob turn to the teacher who is present in the classroom for help, but instead uses his smartphone as a resource to search for information with the help of the search engine Google and the website Wikipedia. The smartphone gives him the opportunity to quickly move outside of the classroom and get access to information other than that which is accessible to him in the physical and material context of the classroom. Here, the smartphone becomes a resource that helps him re-design the text he has been assigned to read and analyse, and also to evaluate parts of his poem

analysis at the same time—i.e. whether the poem he is working with is a haiku or not, which he concludes it is not.

From a power perspective, there are primarily two aspects that appear through the participants' orientation towards norms in the literacy practices which this event is part of. Firstly, by posing the question and doing the search online, Jacob is positioned as a responsible and close to over-ambitious student in his group of peers, which can be related to questions of student ideals both in relation to school assignments and peers. Secondly, it shows how the smartphone becomes a resource for the student to gain access to information which the teaching does not offer in terms of available texts or the presence of the teacher. With the help of the smartphone, Jacob expands the text worlds of the classroom and gives himself access to the diversity of information and perspectives available online by doing a Google search for other texts (here in terms of a text from Wikipedia). At the same time it is evident that he, through his use of the smartphone, does not seek help from the teacher to answer his question. Thereby he indirectly frees up the teacher resource in the classroom so that there are fewer students competing for the teacher's attention and more students are given opportunities to receive assistance from the teacher. However, Jacob's use of the smartphone also leads to a situation where the teacher is placed outside of the text world in which he is moving. The teacher, thus, will not be aware of the fact that Jacob is making use of previous knowledge to test it in a new context and can therefore neither support this teaching process nor use his idea as a resource to create new understandings, connections to prior knowledge and progression in the teaching for the group as a whole (see Tanner, 2014).

4.3 Resource to create agency

In the next example, the smartphone is used in connection to a group project where several students are involved in the use of the smartphone. In the example, we meet four students who are engaged in a group project about the Middle Ages, and they have been assigned by the teacher to prepare for a presentation where they will describe the Middle Ages to their peers. The group have discussed their assignment for a few minutes and, when we enter the example below, Hanna has just taken Erica's smartphone (Hanna's smartphone is charging on a shelf behind her) and done a Google search on the word "salve", which is the name of a children's TV-programme she used to watch. Out of the suggestions she receives from the search engine, she chooses to click on the link "salve svt", after which she shows the result on the screen to the rest of the group (see Figure 3):

Figure 2. Showing result for "salve svt" (#line 5, excerpt 2)

Example 2: "This is what it looked like!"

Excerpt 2.

```
1    Hanna:      här
                 here
2    Erica:      va- vart vill vi komma med det här.
                 wh- where are we going with this.
3    Christin:   [(men ska ju bara repetera)]
                 [(but should just repeat)]
4    Agnes:      [(var runt det här)        ]
                 [(how is this)             ]
5                #((everyone looks at Hanna's screen))
6    Hanna:      >det ser ju ut som< medeltidsgrejer ö-
                 verallt
                 >well it looks like< medieval stuff
                 everywhere
7                [så här]
                 [this is]
8    Erica:      [å gud] jag har aldrig [sett (på den
                 här)]
                 [oh lord] I have never [watched(this
                 one)]
9    Agnes:                             [  jag har
                 aldrig ]
                                        [    I have
                 never ]
10               sett den?
                 watched it?
```

```
11   Hanna:    nej.kan ju säga att ja-
               no. well I can say that-
12   Erica:    Sa:lve
               Sa:lve
13   Hanna:    så här såg det ut
               this is what it looked like
14             (0.4)
15   Hanna:    å så var det- du jag minns det så väl
               för
               and then there were- you know I remem-
               ber it so
16             det var mitt >favoritprogram< då va ja-
               well because it was my favourite >pro-
               gramme<
17             tror jag var (.)nio eller nåt .h
               when I- I think I was (.) nine or some-
               thing .h
18   Erica:    [   (ska re va nå )   ]
               [(should there be any)]
19   Hanna:    [           (ti)      ]
               [            (ten)    ]
20   Erica:    mm:
               mm:
21             (0.6)
22   Erica:    mm:     ja nej nu kör vi (.) [ så]
               mm: well no let's get on (.) [there]
23   Hanna:                                 [här]
               finns det ju
                                            [there]
               are
24             avsnitt också nämligen
               episodes here as well you see
25             ((points at links to episodes on the
26             screen and looks up at Erica))
27   Erica:    ↑jass:å säger du det ((går till starts-
               kärmen))
               ↑rea:lly you don't say ((goes to the
               home screen))
28   Hanna:    få [inspiration]
               get[inspiration]
29   Erica:      [ ja men   ] det blir alt- det blir
               alltid
                 [ yes but  ] it alw- it always
30             så då:ligt så här barn som klär ut sig
               i jä-
```

```
                turns out so ba:d when kids dress up in
                gia-
 31   Hanna:     det- ja (.) ja
                it- yes (.) yes
```

In line 1, Hanna exclaims *here!* and shows the screen to her friends. However, Erica has a different attitude towards the task and in line 2 she asks *where are we going with this*, to which Christin and Agnes reply in lines 3 and 4. At the same time as they are discussing how to approach the task, they also lean towards Hanna's mobile screen and look at it (line 5), which means that all of the students are now directing their attention to the smartphone. Next, Hanna points out that *well it looks like medieval stuff everywhere* (line 6). By using the particle "well" she tries to indicate that what she is showing is relevant to their discussion on the Middle Ages. However, Erica as well as Agnes make it clear in lines 8–10 that they have never seen the children's programme which Hanna is showing them (they are claiming no recognition). Hanna confirms and responds to their lack of recognition, and starts to tell them more, *no. well I can say that-* (line 11), but is interrupted by Erica who exclaims *Sa:lve* (line 12) with emphasis, as if this is news to her. Hanna keeps talking, *this is what it looked like* (line 13), and continues after a brief silence (line 14) by telling them that this was her favourite programme when she was younger (lines 15–17). Her friends, however, show no direct interest in the programme as a possible resource for their assignment, and after a palpable silence (line 21) Erica takes the floor and says *yeah hm:. no let's get on* (line 22) at the same time as she takes her smartphone back from Hanna. She, thus, achieves an action which means that Hanna's proposal is rejected.

However, Hanna makes another attempt to argue in favour of her proposal when she, in lines 23–24, informs the group members that *there are e:pisodes here as well* at the same time as she points at the smartphone and looks up at Erica. Erica does, however, react to this with a repeated rejection by replying with an ironic: *rea:lly you don't say* (line 27). As a response to this, Hanna delivers a new argument; namely, that the programme could be used to *get inspiration* (line 28). This time Hanna is, however, once again rejected fairly strongly by Erica who conveys an opinion that children's programmes tend to turn out badly (line 29–30) since they are about children *dressing up*, which enforces the impression of the programme as something "childish" and something which is not suitable for their assignment. In line 31, Hanna shows that she gives in by concurring, *yes (.) yes*. The students then change the topic of conversation and move on in their discussion about the group project.

4.4 Sharing experiences beyond the classroom

In the second example, Hanna uses the smartphone to tell the others about a children's programme she used to like. The programme is about people who lived during the Middle Ages, which she, through the help of the smartphone, is able to

contextualise by showing images and texts from the results of the search engine. Here, Hanna uses the smartphone as a resource to search for information, but above all to show her own experience of the programme so that it becomes available to the students she is working with as well. Thus, her use of the smartphone not only enables travel in time and space, where her childhood memories and experience of the children's programme are used as a resource in the assignment which the teacher has initiated in the classroom, but she also uses the smartphone as a tool to be included in the work of the group. By using the smartphone she is also able to convey that she has certain knowledge about the Middle Ages and that what she wants to show also is relevant and well-founded in the context.

Hanna's actions could be described as using the smartphone to create agency and influence in the text production. The smartphone becomes a resource in the negotiations of the group on how they should frame their presentation, as Hanna presents the opportunity for the group to transform the programme into their own text production. This would include a need to deconstruct the TV programme to be able to identify the characteristics which make it an example of medieval culture, which from a critical literacy perspective refers to aspects of design but also opportunities to discuss how power structures are depicted. However, this opportunity is rejected, and from Hanna's perspective the proposal includes a socially risky action. The online search becomes a resource to position herself in the group, but as she shows the children's programme to her peers, at the same time she exposes herself to the risk of being rejected.

4.5 Inclusion and exclusion

In our third and final example, we will illustrate what happens when a student uses her smartphone to search for information which then is conveyed to peers in relation to a group project. In the example, we meet six students who are involved in a group project on the world's major religions. The group have been assigned to make a presentation about Buddhism, and they have fairly quickly agreed to do it in the form of a quiz using the application Kahoot[1]. Three of the students (Jacob, Amanda and Lisa) are sitting in front of a laptop screen where they are creating the quiz, while the other three (Emma, Johanna and Daniel) are sitting opposite them.

During the first few minutes when the group are working on the questions and possible answers, the three students in front of the laptop are the most active members of the group. The group is focused on the laptop where the quiz is developing,

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[1] *Kahoot is a free service where you can create a quiz on your computer or smartphone. An optional number of questions and answers (however, each question has to have four possible answers) are entered and then the participants answer the questions using their smartphones. The answers are checked immediately and a score chart can be displayed to the participants, who can then follow the progression of the quiz.*

and it is clear that the three students who are unable to see the screen find it more difficult to contribute. Johanna tries, however, on two occasions to contribute with input while Daniel, throughout the entire example (and the entire recorded sequence), positions himself as a non-active member of the group. Like Johanna, and unlike Daniel, Emma shows a more directed focus on the group task by, for example, leaning forward and, from time to time, seeking eye contact with Jacob, Amanda and Lisa. On a few occasions she does, however, leave this position and instead picks up her smartphone and searches different sites with information about Buddhism.

Figure 3. Emma reads her proposal for a new question (see excerpt 3, line 5).
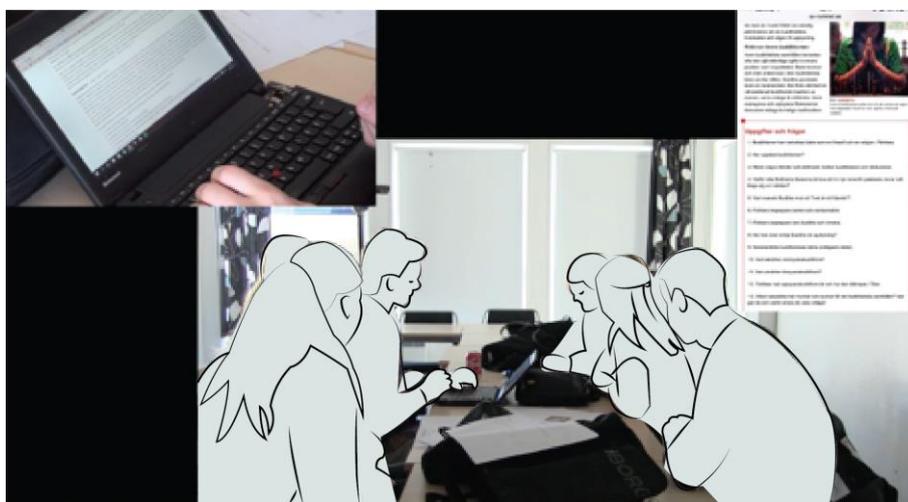
Once the three students in front of the laptop have created a number of questions and possible answers, the group eventually end up in a situation where they request new proposals, and as we shall see below, Emma's mobile search gives her an opportunity to take on a more active role in the group:

Example 3. "we can take this one as well"

Excerpt 3.

```
1    Jacob:    add question
               add question
2    Lisa:     vad ska vi ha nu då
               what should we add now then
3    Johanna:  ska vi ha     [vad den här] innehåller
               we should add [what this] includes
```

```
4   Amanda:                      [  ja    ]
                                 [  yes   ]
5   Emma:    vi kan ta den här också vad menade Bud-
             dha med
             we can add this one as well what did
             Buddha
6            att- livet är ett lidande?
             mean by life is suffering?
7            ((has the questions from the social sci-
             ences
8            web page on the mobile screen, everyone
             looks
9            at Emma))
10           (0.5)
11  ?        Mm
12  Jacob:   [          ja:((ler))     ]
             [          ye:s ((smiles))  ]
13  Emma:    [(>sen kan man skriva>)]
             [(>then you can write>)]
14  Emma:    (( scrollar upp på sidan)) och så kan
             man skriva
             ((scrolls up on the page)) and then you
             can write
15  Amanda:  å sen kan vi ta (x)
             and then we can take (x) ((points to Jo-
             hanna's paper))
16           (0.4)
17  Johanna: ja:
             ye:s
18  Emma:    å det ä:: ju att- man bara strä-strävar
             efter
             and that i::s that you only stri- strive
             for-
19  Jacob:   väntaväntavänta e::
             waitwaitwait e: ((covers his ears
20           demonstratively))
21           (0.2)
22  Emma:    he he he
```

```
23    ?          he he he
24    Amanda:    wait gir:l ha ↑ha ((lyfter ena handen))
                 wait gir:l ha ↑ha ((holds up her hand))
25    Emma:      mm he he ((drar i håret runt örat))
                 mm he he ((pulls her hair around the
                 ear))
26    Jacob      ((skriver på laptopen)) vad menade
                 Buddha
                 ((types on the laptop)) what did Buddha
                 mean
27               med att livet är ett-
                 by life is-
28               (7.0) ((Jacob types, meanwhile Emma
                 scrolls
29               on the page on the mobile))
30    Jacob:     mm:
31               (1.3)
32    Jacob:     [ ja?]
                 [yes?]
33    Amanda:    [what] did he mean?
                 [what] did he mean?
34               ((0.6) ((Emma zooms in on the text on
                 the mobile))
35    Jacob:     what did [he mean            ]
                 what did [he mean            ]
36    Emma:              [ja det står typ-  ] Budd- nej
                         [well it says like-] Budd- no
37               (1.0)
38    Emma:      Buddha lärde ut att människans liv är
                 ett
                 Buddha said that human life is only
39               enda lidande eftersom livet är så
                 växlande
                 suffering since life is so changeable
40               och osäkert samtidigt som vi människor
                 aldrig
                 and uncertain at the same time as we
41               blir nöjda utan hela tiden strävar efter
                 mer.
```

```
                    will never be satisfied but always
                    strive for more.
  42                (0.7)/((zooms in))
  43                ett slags- ett slags konstant [tillstånd
                    av- ]
                    a sort- a sort of constant   [state of-
                    ]
  44    Jacob:                                    [okej så
                    där   ]
                                                  [okay we
                    cannot]
  45                långt kan vi inte skriva
                    write all that
  46    Emma:       ((zooms ut))
  47    Emma:       [disharmoni?]
                    [disharmony?]
  48    Amanda:     [men skriv eft-] [att eftersom att
                    människan=
                    [but write sin-] [that since the human
                    being=
  49    Emma:                        [nej men jag försöker
                    bara=
                                      [no but I'm only trying
                    to=
  50    Amanda:         = aldrig blir nöjd.]
                    =will never be satisfied.]
  51    Emma:                      =förklara det]((tittar upp
                    mot Amanda))
                                    =explain it] ((looks up at
                    Amanda))
```

When Jacob reads aloud from the laptop in line 1, *add question*, and when Lisa follows up on this in line 2 by posing the question *what should we add now then?*, it opens for the rest of the group to contribute with proposals. When Johanna responds by proposing something which they could include in the quiz, her proposal is also fairly quickly met by a positive reaction from Amanda in overlapping speech, but before Johanna has time to present her proposal in full, Emma says *we can add this one as well what did Buddha mean by life is suffering?* (lines 5–6). When Emma continues and presents this pre-formulated question, everyone turns their attention to her, and Jacob, who is sitting by the laptop typing, responds positively by shouting

out *ye:s!* (line 12) at the same time as he bursts into a smile. After this positive re-sponse, Emma develops her proposal (lines 13–14), while Amanda adds that they can come back to Johanna's proposal later, which Johanna confirms (lines 15–17). Emma continues, however, to develop her proposal which she has found through her search; she scrolls up in the text on her smartphone and says that they could write *that you only stri- strive for* (line 18), but she is interrupted by Jacob who fairly loudly tells her to wait (he repeats the word *wait* three times in rapid succession [line 19]) at the same time as he demonstratively covers his ears with his hands. The tone is jovial, and Emma also joins in the laughter while Amanda with a joking tone uses the expression *wait girl* (line 24), to which Emma also responds with laughter (line 25).

As Jacob types in the question on the laptop he says *what did Buddha mean by life is* (lines 26–31) and then falls silent, whereupon the rest of the group looks at him while he is typing. Here, Jacob's typing functions as a time regulator (the others are waiting for him to finish) and when he has finished typing seven seconds later he says *mm! yes!?* (lines 30, 32), thus indicating that he is waiting for the answer that Emma never had the time to provide, at the same time as Amanda in line 33 asks for the same answer, *what did he mean?*. While Jacob repeats Amanda's question (line 35), Emma takes her turn and reads a few sentences aloud, word for word, from the page she has open on her smartphone (lines 36–43). In the midst of reading, she is however interrupted by Jacob who says *we cannot write all that* (lines 44–45), whereupon Amanda enters the discussion and proposes what they could write in-stead. However, Emma continues reading, at the same time as she zooms out from the text she is reading (lines 46–47). Next, Amanda takes her turn and starts to sug-gest how they could formulate a shorter answer, *but write sin- that since the human being will never be satisfied* (lines 48–50). At the same time and partly overlapping, Emma defends the long answer she gave by saying *no but I'm only trying to explain it* (line 51).

4.6 Bringing in resources to perform agency

This sequence illustrates how some of the students in the group are engaged in a negotiation on what to write in their joint presentation. As the work in the group progresses, Emma has sat quietly and not taken an active position, but by following the screen on her smartphone, we are able to observe that she, on a few occasions, has used her phone and that she has accessed SO-rummet[2], the NE (Swedish ency-clopaedia) and Wikipedia to search for information on Buddhism. During the epi-sodes when she has not been using the smartphone, she has been focused on the conversation of the group, but without being able to see the laptop screen where

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[2] *The social sciences page, SO-rummet, is a digital resource which is run by an upper secondary school teacher and is, according to the founder of the page, the largest link library in Sweden for social scientific subjects.*

the texts are being written. When Jacob, at the start of the excerpts, explicitly asks what they should write next, Emma suggests a question which she has found through her mobile search. By following the activity on her mobile screen, we can observe that she is reading aloud from the web page. To Emma, the smartphone thus becomes a resource which enables her to gain agency in the group project, and she also uses her mobile in the discussion that follows to develop her proposal. This is, however, met by some resistance from the group since the text is too long in relation to the format of Kahoot. This gives rise to a negotiation, where Emma defends her long answer in relation to Amanda's somewhat critical attitude. The different participants do, however, maintain a jovial tone and laugh together, which has often proven to be a "face-saving" resource to soften criticism and differences in opinion in a discussion (O'Donnel-Trujillo & Adams, 1983).

The group project and the activity surrounding the quiz are consequently directed towards Jacob and the laptop where he is typing down the group's questions and answers. The three students who are sitting opposite Jacob, Amanda and Lisa are less active and do not have the same view of, or access to, the laptop screen and the activity which is taking place there. This makes it more difficult for these students to participate in the project. In one sense, the laptop thus becomes both an excluding and an including resource in the group project. It works as a resource that primarily includes the three students who have a shared view of the of the laptop screen, which excludes the three students who does not see the screen. In a sense this means that access to the text which is being created in the group project, in many respects, is dependent on the students' bodily position in relation to the laptop screen. The smartphone which Emma uses could be said to function in a similar way. When Emma uses her smartphone she starts doing so on her own, and in a sense she steps back from the classroom and the activity in which the group is engaged at the moment. At the same time, the smartphone enables Emma to search for facts, and she thereby gains access to a resource with which she later is able to participate in the negotiation on speaking space and influence its content. This way she can contribute with information about Buddhism, to the collective meaning making which is taking place when the group construct their quiz. The smartphone can, thus, be understood as an including resource from Emma's perspective, and in that way she positions herself as a student (and peer) who is actively participating in the schoolwork and who takes responsibility for her own and her peers' knowledge creation.

Just like in our first two examples, Emma's use of the smartphone leads to a situation where she and her peers in the group are working with texts into which the teacher does not have a direct insight. However, unlike the previous examples, it is a situation where the text which Emma chooses to read to the rest of the group is treated and processed in a completely different manner. Besides the processes which are going on when Emma scrolls her way to the texts and reads them to herself, the sequence above includes a more comprehensive transformation process which entails processes where Emma first reads the text in question from the social sciences page to the rest of the group, who then process the content together, and

finally Jacob attempts to try to summarise it in written text on the laptop. The students, thus, make use of their room for participation not only to gain access to texts other than those available in the classroom, but also to re-design the original text which Emma reads to them, and, as in the previous examples, this takes place without the teacher's involvement.

5.   DISCUSSION

A key element in the analysed literacy events is how the students use the smartphone as a powerful resource for getting immediate access to information, in a way that differs from seeking information from, for example, a textbook, or a book at the school library. This use of the smartphone gives the students extended opportunities to undertake the tasks and challenges which they encounter in the teaching. The analysis of the three examples also shows how the information seeking on the smartphones is a highly embodied activity that involves not only the owner of the phone, but also surrounding peers. However, this information seeking, and the processes that follow when the students share this information with their peers, is something that to a large extent passes under the teacher's radar. This limits the teacher's possibility to conduct teaching that corresponds to the learning processes that the students are engaged in during these literacy events. In the analysed examples, the smartphones are used in peer interaction as a resource to connect a question to previous shared experiences of the teaching (haiku), to share personal experiences and bring them into the classroom (Salve) and to make a self-invitation to a next turn in a group conversation (Buddha). Information seeking on smartphones is thus shown to be made in and as part of the social interaction in the classroom literacy practices. This is done merely in relation to peers in the close vicinity of the student, which in none of the examples includes the teacher.

Based on Janks (2010), the actions that are set into play in these examples could be viewed as processes where the students independently, and through their use of the smartphone, gain *access* to, and *design*, their own texts, and where they also, by sharing these texts (which in turn includes processes of re-design), not only contribute to a collective knowledge creation, but also enables them to meet a *diversity* of texts in the classroom. In one sense, the situations above could be understood as illustrating how the students' encounters with the *dominant* text selection of the school are not enough for them in their schoolwork; a text selection which, in addition, is very limited (see Tanner et al., 2017). The smartphone thus becomes a new resource which give the students agency to, based on their subordinated power positions in the classroom (see e.g. Wyndham, 2013), design their own texts, which Janks argues are powerful actions through which the students can challenge and change the prevailing discourses which surround them (Janks, 2010).

Our analyses show, however, that these actions take place without the teachers being aware of them; consequently, the teachers have no insight into, and thus no opportunity to gain an overview of, the literacy events in which the students are

engaged. The result of our study points out how the teacher's position as an authority becomes challenged in terms of access to, and overview of, the diversity of texts which are included and processed by the students in the classroom. This also leads to a situation where it is difficult for the teacher to keep track of what type of information the students are studying, how they share it with each other and how they process it – on their own and/or together. Thus, the possibility to follow and support the students' learning processes becomes more challenging as the student's literacy activites ends up under the teacher's radar.

The question is how this is of consequence for the meaning making processes in the literacy practices of the classroom, and on whose terms this takes place. Our analysis provides no clear answer to this, but it becomes evident that digital tools in general, and smartphones in particular, change the teacher's position in relation to students' literacy activities. The students' design of their own and new texts places new or altered demands on students as well as teachers. In the light of the information search which takes place in the analysed examples of the article, and in the sharing of information which follows the students' spontaneous smartphone use, questions are brought to the fore regarding, for example, how the education context contributes to meaning making and critical approaches to the information which the students search for and make use of. The increased access to a diversity of texts which smartphones, and other resources in the connected classroom, enable, also requires that the students have the ability to evaluate and use the information. In none of the examples in this article do the students, for example, raise questions regarding the source, aim etc. of the texts; rather the texts appear to be used without concern or reflection. According to Janks (2013, p. 227), critical literacy is about "enabling young people to read both the word and the world in relation to power, identity, difference and access to knowledge, skills, tools and resources", and in this respect, the school has a particularly important task to develop students' critical literacy.

For teachers, these new classroom literacy practices that the use of smartphones creates, require greater insight into (and understanding of) the literacy events which are staged when students design texts. In order to meet these challenges, and to embrace the opportunities that this also creates, it is important that teachers are not only aware *that* the students use smartphones in classrooms, but also have knowledge of *what* is going on when they use them. With an increased understanding of these processes, teachers would have better prerequisites to apply teaching methods through which the students can develop their critical literacy. This also includes an education where students and teachers, together and socially, visualize and discuss the use of digital technologies, identify its possibilites and challenges, which in turn can help students to develop into critical users of these digital tools. These findings, we claim, raise the need to conduct further examination of the teacher's role, and significance, in the connected classroom.

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APPENDIX: TRANSCRIPT NOTATIONS

[ ]	overlapping utterances, whether at the start of an utterance or later indicates a point at which two overlapping utterances both end, where one ends while the other continues, or simultaneous moments in overlap which continue
(2.0)	length in seconds of a pause
(.)	a short untimed pause (less than 0,2 seconds)
(( ))	contextual description and accounts
(x)	an uncertain hearing of what the speaker said
<u>Word</u>	stressed syllable or word
°world°	degree signs indicate that talk is markedly quiet
>word<	left/right carats indicate that the talk between them is compressed
:	a prolonged stretch
=	continued speech
-	hyphen after a word indicates a cut-off or self-interruption
↑	up arrow marks a sharp rise in pitch
#	indicates the exact moment at which the screen shot has been recorded