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Reference to this paper in APA (6th):

Helleve, I., Almås, A. G. & Bjørkelo, B. (2019). Becoming a professional digital competent teacher. *Professional Development in Education*. doi: [10.1080/19415257.2019.1585381](https://doi.org/10.1080/19415257.2019.1585381)

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Becoming a professional digital competent teacher

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Introduction

During teacher education, student teachers transition from students to teachers. However, professional development to become a teacher starts long before a student teacher enters teacher education, and experiences and memories from many years have laid the foundation for their attitudes and beliefs (Körrkö *et al.* 2016). These experiences constitute an important aspect of student teachers' practical theories (Handal and Lauvås, 2000) forming the professional framework that guides teachers when planning, acting, and reflecting on teaching and other daily professional activities. However, professional learning for teachers faces tensions concerning identity, social participation, and life balance (Kimmons and Veletsianos 2015).

Also when it comes to membership in social networking sites (SNSs), student teachers have to move from a private to a professional position. When student teachers enter teacher education, most of them have extensive experiences with the use of SNSs (XX 2013). As members of SNS they present themselves as private persons as long as they are students. Awareness of how to act in social media is also part of a professional learning process. Ideas of privacy and teacher conduct are not yet sufficiently defined in the online world (Foulger *et al.* 2009).

Teacher education is reported to pay too little attention to student teachers' digital competence (Tømte *et al.* 2015), and a report from the Center of ICT in Norway emphasizes that student teachers need to develop what is called professional digital competence (PDC) (Kelentric *et al.* 2017). Learning outcomes should be reached in seven different areas where the newly qualified teachers are supposed to be able to support their pupils – for example, collaboration, communication, and ethics – before the student teacher can be declared to be professionally digital competent, but the report says nothing about how student teachers should gain this competence. Lund *et al.* (2014) argue that we need to establish a link between PDC and a more comprehensive perspective on professionalism and professional learning.

A common criticism among student teachers, internationally as well as nationally, is a perceived gap between practical teaching (knowing how) and the university coursework (knowing what) (Finne *et al.* 2014, Korthagen 2010, Kvernbekk 2012). It is not enough to be told how to act as a digital professional teacher. What has been recommended as a way to

prepare student teachers' professional learning and to bring together theoretical and practical knowledge in teacher education is to work with specific cases (Gravett *et al.* 2017). One possible reason for this is that reflection on experiences and cases can enable interplay between the concrete example and formal knowledge. This is the reason why we wanted to include cases as part of the semi-structured interviews in this study. The aim of the study was to focus on challenges and possibilities concerning PDC for student teachers in transition between a private and a professional position. This study is part of a comparative study on ethics, social media, and teacher education in Norway and Australia (XX 2013). The research questions were:

What kind of private and professional experiences do student teachers and newly qualified teachers have with SNSs, in this case Facebook (FB)?

How are dilemmas connected to FB use among teachers and student teachers understood?

How has the topic of FB been treated in teacher education?

Self-understanding in SNSs

SNSs can be defined as “web-based services that allow individuals to 1) construct a public or semi-public profile within a bounded system, 2) articulate a list of users with whom they share a connection, and 3) view and traverse their list of connections and those made by others in the system” (boyd and Ellison 2007, p. 211). Participation in SNSs represents a public or semi-public extension of daily life. In the current study we focus on FB as an SNS. Other SNSs are different and work in different ways – people often use several, but use them quite differently. FB has become the dominant SNS worldwide and is increasingly used by teachers and college faculty (Asterhan and Rosenberg, 2015). In line with the socio-constructivist view on learning, learning management systems might be replaced by FB because FB makes it easy to share information and it encourages discussions. FB might also work as an integral part of students' routines and help to bridge informal and formal learning. However, there are also warnings against the use of FB in education. Kirschner and Karpinski (2010) found negative relations between the time students spend on FB and their academic results. Another concern is that the boundaries between private information and schoolwork might become blurred. FB is associated with friendship and privacy (Carter *et. al* 2008).

Ess (2009) argues that there are three fundamental differences between digital and analogue media, thus giving reasons why digital media ethics should be developed. First, digital media have the ability of fostering convergence, which makes it possible to share common information. Second, information is easily spread. Third, digital media's interactive abilities

make it possible to give responses. Further, Ess argues that across global cultures privacy is regarded as a value. According to Kimmons and Veletsianos (2014), participants in FB are supposed to have a unitary, authentic identity and to use their real names in order to create an account. This means that members have to decide how they want to present themselves as participants in social media, or what Kimmons and Veletsianos (2014) refer to as acceptable identity fragments. As part of their professional learning process, student teachers should learn how to shape their participation in SNS in ways they believe are acceptable to their audience. They should view their participation as a direct expression of their self-understanding, and they should feel that this expression represents only a small fragment of their larger sense of self (Kimmons and Veletsianos 2014, p. 295; Kimmons and Veletsianos 2015).

The way emerging technologies and social media are experienced by educators is poorly understood and inadequately researched (Veletsianos 2013). For teachers, there is a tension between the private and the professional. Privacy can thus take on another meaning when individuals communicate just as much and just as easily with familiar as with unknown individuals. In turn, issues and conversations that were earlier hidden in secret written dairies and kept for intimate conversations with friends, are now posted online. This can in turn lead to false representations, for example, through cyber bullying (Ess 2009). According to van Manen (2010), FB allows potential access to what used to be regarded as private. Even if the SNS offers possibilities for protection, there is always a risk that pictures or sensitive information might end up in the wrong hands.

As part of the professional development process, attention should therefore be paid to understanding the variety of reasons educators might have for participation in SNSs and how their participation relates to their sense of self-understanding (Kimmons and Veletsianos 2015). Most probably the reasons for participation have different personal, professional, and social components (XX 2013). The relationships educators have to friends, family, colleagues, and pupils are different, and consequently they will act differently within the sites depending on whom they are interacting with. Users of SNSs experience that they present only parts of themselves. Veletsianos (2013) found that student teachers show an authentic part of themselves and that the part they want to show differs according to their audience. That study showed that student teachers present themselves intentionally and in authentic ways, and the implication of this is that because acceptable identity fragments are intentional and authentic it is important for future teachers' professional development to gain control over their own

SNS participation. There are two important reasons for this. First, because the presentation is concerning the educator's self-understanding, it is important to be able to make individual choices for how to present themselves and not be directed by regulations from their respective institutions. Second, because the acceptable identity fragments are transitional and might be collected over a long period of time, the educator's digital footprints may be problematic for future career aspirations. Based on their study of student teachers, Kimmons and Veletsianos (2015) conclude that teachers cannot afford to live the same lives as many other professionals do. SNSs are redefining the ways individuals interact and connect, and this has consequences for student teachers' professional development.

Transition from student to teacher

From the time from the student teacher enters teacher education until the final exam is finished and the certificate to teach is obtained, the student should go through a transition from a private to a professional person. There is supposed to be a shift in identity or self-understanding from student to teacher. In this article, the concept self-understanding is used in line with Kelchtermans' (2009a) understanding as an alternative to the term "identity". He argues that self-understanding refers to the understanding the teacher has of their "self" at a certain moment in time (*product*), as well as to the fact that this product results from an ongoing *process* of making sense of personal experiences and of how these experiences have an impact on the "self". The reason for avoiding the concept of identity is that it might easily be interpreted as a static position (p. 261). Further, Kelchtermans argues that throughout their careers teachers develop a personal interpretative framework, which is a set of cognitions that operate as lenses for teachers' work, for how they understand themselves as teachers, and for how they act in their jobs (Kelchtermans 2009b). According to Lee and Schallert (2016), teacher education should attend to how pre-service teachers regulate this dual identity between self-as-a student and self-as-a teacher on their journey to becoming a teacher. On the way to becoming professionals, student teachers face a number of tensions connected to their self-understanding concerning social participation and work-life balance. Kimmons and Veletsianos (2015) claim that these tensions have become even more complicated and difficult to interpret as student teachers have become members of SNSs.

The importance of reflection in teacher education and teacher development is well documented (Calderhead 1989, Korthagen and Vasalos 2005, LaBosky 1994, Schön 1987), and reflection on experiences from practice as highlighted by theoretical perspectives tends to be influential for learning (Darling-Hammond 2006, Zeichner 2010). The term reflection

might, however, be in danger of becoming a buzzword. In this context, the term reflection refers to “both the skills and the attitude of making one’s actions, feelings and experiences the object of one’s thinking”, including moral, political, and emotional dimensions (Kelchtermans 2009 b, p. 267). The previously mentioned gap between theory and practice is well known in teacher education (Finne *et al.* 2014, Korthagen 2010, Kvernbekk 2012), and analyzing and reflecting upon cases is regarded as a way to prepare student teachers for their future work and to bring together theoretical and practical knowledge (Gravett *et al.* 2017). Working with cases might give student teachers alternative experiences because they have to take the perspective of a teacher and thus obtain a nuanced understanding of the complexity involved in teaching (Gravett *et al.* 2017, Merseth 1996). In teaching, there are few correct answers to the questions of how to behave, and consequently there are many dilemmas. Cases can thus help to prepare for uncertain situations that students will have to handle as future professionals (Merseth 1996, North and Brookes 2017).

The use of cases seems to provide an affective as well as a cognitive outcome and to promote critical thinking (Gravett *et al.* 2017), and it helps student teachers to learn to identify problems and to become aware of different perspectives that are crucial for teachers’ critical thinking (Harrington 1995). Student teachers have spent many years as pupils themselves and might implicitly think they know how to behave as teachers (Gravett *et al.* 2017). Asking student teachers to reflect on their fixed ideas might therefore foster different interpretations of complex situations. According to Kim *et al.* (2006) case-based reasoning is not only a prevalent everyday reasoning strategy, but also synonymous with deep learning (p. 5).

The Norwegian context

Norwegian teacher education has been criticized for a lack of focus on digital competence (Tømte *et al.* 2015). The main conclusion of a national research report including 19 of the 21 teacher education institutions in Norway is that development of PDC is poorly anchored in the leadership in teacher education and that most of the education lacks a general approach to the development of such competence. In addition, the PDC among teacher educators in Norway is weak (Tømte *et al.* 2013).

Another report from the Center of ICT in Norway emphasizes that student teachers need to develop their PDC (Kelentric *et al.* 2017), but the concept of PDC is not defined in the report. Lund *et al.* 2014 argue for the understanding of PDC as:

Comprising a deep understanding of technology, knowledge of students' learning processes, and an understanding of the specific disciplinary practices and features characterizing individual school subjects (p. 281)

The ambition from the national Center of ICT in education is to place the concept of PDC within the core of teacher education institutions in Norway. From the student teacher's perspective, this means fostering the ability to design learning processes through learning objectives, to choose means and types of evaluation, and to select appropriate technology to support (Kelentric *et al.* 2017). In order to become digitally competent professional teachers, student teachers should develop knowledge, skills, and general competence in several fields, including ethics and the effect of technology on schools and society. Further, a digitally competent professional teacher should understand the possibilities for how to integrate technology and subjects, how to be the leader of learning processes that include the use of technology, and how to use technology in communication, and they should be conscious of the fact that technology is in constant development. From the perspective of teacher educators, developing PDC means to actively use technology in their own teaching and evaluation of students and to make specific didactic choices within subject contexts that students should adopt and reflect upon (Ottestad *et al.* 2014). According to Molander and Terum (2008), being a professional means being able to handle a task in a qualified, correct, or ideal manner (p. 18). In our study, the term "competence" is understood as the total sum of qualifications a person needs in order to act in a professional manner (Illeris 2009).

Methods

This paper is based on Norwegian data from the third data collection in a comparative study on ethics, social media, and teacher education in Norway and Australia (XX 2013) that was conducted over three periods of data collection between 2011 and 2013.

This study should be defined as a case study. Case studies are suitable for answering research questions that arise from a desire for understanding complex social phenomena. According to Yin (1994), a case study is appropriate when *why* and *how* questions are being asked about a contemporary set of events over which the researcher has little or no control (p. 9). The case might be seen as "a thing, a single entity, a unit around which there are boundaries" (Merriam 1998, p. 27). As the product of research, a case study is an intensive, holistic description and analysis of a single entity, phenomenon, or social unit (*ibid.*). According to Hatch (2002),

defining the boundaries, or specifying the unit of analysis, is the key decision in case study design. The unit of analysis in this study is students' experiences and reflections concerning the use of SNSs in their transition from private to professional individuals.

Procedure

T1. The approached sample at T1 were pre-service teachers studying at six teacher education institutions in Norway. The teacher education institutions were approached through gatekeepers (i.e., personnel whom the researchers already knew). Paper-based questionnaires were personally distributed by one of the authors and filled out before, during breaks, or following a plenary lecture, with an across-site response rate of about 80% ($N = 475$).

T2. At T2, the participants in T1 who gave their consent to be approached for a follow up ($n = 166, 35\%$) were contacted by text message. Of these, a total of 40 participants (24%) responded in a way that it was possible for them to receive a follow up web-based questionnaire. Of these, a total of 35 participants (87.5%) participated, and of these 14 (40%) consented to participate in T3.

T3. At T3, seven participants (50%) participated, and these made up the sample for the current study based on semi-structured interviews with cases. All three measurement points were approved by the Norwegian Social Science Data Services. Open, closed, and numeric response categories were applied and numerical and text data analyses were conducted. Numeric descriptive analyses were performed with IBM SPSS 22, and open response categories were analyzed with NVivo 10 and 11, Microsoft Word, and template analysis (King 1998) as inspired by a hermeneutic understanding (Gadamer 2004/1975).

Sample

Information on the seven informants in the current interview study (T3) is given in Table 1.

Table 1. near here

Interview guide

The semi-structured interview guide was developed based on the topics covered in the questionnaires as well as on experiences from the previous studies. The questions asked about pre-service teachers and teachers' professional development through SNSs, including experienced boundaries, transitions, and grey areas between private and professional use of

SNSs. Questions asked about SNS use (private and professional), potential changes after becoming a professional, reflections on private and professional SNS use, and factors that might influence professional behavior on SNSs. At the end of the interview, the interviewees were introduced to two cases and asked to give a response.

Cases

At the end of the interview the interviewees were presented with two different cases that they were supposed to respond to. The two cases were developed inspired by Fougler *et al.* (2009). The concept of “case” is understood here as a real or realistic situation from the practice field that was presented and reflected upon. The first case dealt with a student teacher who was under suitability assessment by the teacher education institution’s board because he had befriended pupils in one of the classes he had been teaching as part of his practicum. The participants were supposed to discuss how the assessment board should react and why. The second case was a teacher who discovered that her colleague and friend, and who was also her niece’s teacher, was friends with some of her pupils on FB and “liked” the posts of a small selection of her pupils. The interviewees were asked what they as teachers would do in such a situation. According to Fougler *et al.* (2009), case-based approaches can be effective in teacher education for constructing knowledge, developing critical knowledge skills, and recognizing multiple perspectives (p. 6). Our motives for adding the cases to the interview guide were twofold; first, we wanted the student teachers and newly qualified teachers to experience the case-based approach, and second we wanted them to reflect upon private and professional dilemmas according to the research questions.

Limitations

A limitation with this study might be that it only included seven informants. When we asked the 40 informants who responded through SMS who were willing to meet us for an interview, we had no control concerning how many respondents we would get. However, in qualitative studies the aim is to get a deeper understanding of the phenomenon that is under study.

According to Kvale (1996), a qualitative research interview attempts to understand the world from the subject’s point of view. Accordingly, the number of subjects depends on the study’s purpose (p.102), which in our case was to get a deeper understanding of student teachers’ private and professional experiences with FB. We found seven informants to be enough to answer our research questions.

Another limitation might be that the interviews were conducted some time ago within the “fast-moving” area of ICT. However, as long as FB is the dominant SNS worldwide (Asterhan and Rosenberg 2015), the necessity for student teachers to reflect upon their self-understanding as members of this SNS is still urgent for professional development.

Analysis

After the interviews were transcribed, one of the authors first thematically analyzed the results with NVivo 10 and 11 before sharing the preliminary results with the other authors. The first analytical strategy was inspired by template analysis in which “the researcher produces a list of codes (a ‘template’) representing themes identified in their textual data” (King 1998, p. 118). Then, one of the other authors developed a matrix in Word inspired by a hermeneutic understanding of the analytic process (i.e., trying to understand the whole while at the same time reconsidering that whole). This included re-analyzing the data by reading and re-reading the initial codes as well as going back to the data to get a sense of the whole, including writing memos and highlighting places where interpretations were supported and challenged. For each step of the analysis, the results were shared and discussed thereby providing grounded data (Hatch 2002). This joint process of analyzing the data also provided inter-coder reliability in terms of gaining consistency of the interpretations made from complex phenomena (Malterud 2001).

Findings

Private experiences

All of the student teachers or teachers in T3 except for one were members of SNSs, in this case FB. The main reason for participation was to stay in contact with friends. Appointments were made through FB, and the participants argued that it is important to keep up and not lose contact and information, as one participant said, “If somebody plans to do something, it goes via FB”. Some also mentioned family, but the main reason was contact with friends. As student teachers they were members of closed groups. One informant was an eager chess player, and his reason for participation in FB was to stay in contact with other chess players. The only person who was not a member used to be earlier but found that it took too much time and as a consequence she deleted her account. She described her membership as if she had been “absorbed” into the media.

Two teachers had experiences that they characterized as problematic situations. Most of the informants referred to what they had seen others do on FB, and only these two mentioned that they had done something they regretted. The first was a teacher who chose to publish her own cancer diagnosis on her private FB profile. She got a lot of different reactions, and she soon regretted that she had done it. But by then it was too late. The other example was a teacher in higher education who posted information about a student who started crying during a guidance interview. This message also caused many unexpected reactions, and the interviewee regretted what he had done.

The experiences others referred to were either of a sexual or racist nature. An example of a racist publication that a student teacher had reacted against was a “friend” who lives in Israel who had published disparaging remarks against Palestinians. One teacher told about “friends” who published a pornographic movie on FB, while another informant told how some of her “friends” had an open discussion concerning their private unfaithfulness to their partners within the same FB group. The teacher was frightened by this experience.

Experiences from professional work

All the informants in T3 claimed that they had changed their attitudes about privacy on SNSs since they had started their studies, and they were more aware of the adjustments and possibilities for security. None of the interviewees were friends with their students. One of the teachers had tried to make a closed group for the students in her class for professional purposes, but the pupils in 8th grade did not want to be friends with their teacher and she accepted that. Another teacher created a group for a theatre project and had asked a pupil to friend her in order to establish the group:

I remember I thought that in this period I would not write anything that a pupil should not read. It's about how flippant I could be, because I want to be a professional person for the pupils. It is a very different relation from friends. When the project was finished, I wrote him a message saying: “Now I am ‘deleting’ you as a friend”, and he answered: “I understand, good bye!” I think it was the same for him, because then he could publish his silly teenage-messages without me knowing it.

However, even if none of the informants wanted to be friends with their pupils, some of them knew teachers who were friends with their current or previous pupils. One teacher said that she could see that FB is a “low-threshold service” for contact between teachers and pupils. Her pupils are on FB, and if she wants to reach them the SNS is the easiest way. Another referred to a fellow student who became “friends” with his pupils: “I think he is far too private with the students. He is sending messages and pictures on Instagram and communicating a lot

with them". To be a teacher also means to be an example for the pupils. One of the informants said:

I remember from my studies that we discussed whether teachers should act as role models for pupils and that you should be the same person whether you were at home or at work. I am not sure if I mean that; I think it is like a job, but I would never have published anything about, for example, use of alcohol. Then I would be afraid my pupils would find out about it, and that would be very embarrassing. It's like you would not like to know that your pupils had seen you drunk in the city, either.

Common in our findings is that the challenges with SNSs were not discussed among the teaching staff. In this study, FB was hardly used for pedagogical purposes, and there was only one informant who had used FBs for pedagogical purposes. The others were skeptical and argued that they were afraid of coming too close to the pupils.

Pupils' negative experiences

When it comes to communication between the pupils, one of the teachers in T3 said:

They do not meet their friends any more. They just talk to them on FB instead of inviting them over. It is a way of keeping up appearances. Everything is supposed to be so perfect.

Teachers also reported that they had observed Face raping when they were in practicum. Another teacher referred to a pupil who was a member of a FB group where she was the only person who was not invited to a birthday party. The interviewees had also seen examples of bullying through SNSs, as one of the student teachers said:

What is new is that the kids are not only bullied at school, and now it continues throughout the whole day.

In their practicum work, the student teachers experienced that the classroom teachers were discouraged by pupils' use of SNS when they were supposed to be listening to the teacher, but they never discussed these problems with their fellow student teachers.

How are dilemmas connected to SNS use understood?

Concerning the first case with the student teacher who had befriended his pupils, the majority of our informants agreed that it is wrong to be friends with pupils on FB. One informant said that there should be clear codes of conduct that forbid this kind of relation.

There is a lack of balance in the power relation between teachers and pupils that is strengthened in social media. It becomes more private. If this had happened in a lesson

in school, all the other pupils would have seen it and reacted upon it. If you don't tell anybody, it becomes your private problem.

The reason is that when it comes to personal messages, FB is an invisible arena for everybody other than the two who are involved. Consequently, this informant argued that teachers should not be friends with pupils.

Others claimed that if the student teacher in this case is unable to reflect upon what he has done, he should not be allowed to continue as a student teacher. However, two of the interviewees had another opinion and claimed that they would start with the pupils. They felt that maybe the youngsters found it interesting to be friends with the young student teacher, and they argued that when you are 16 years old like these pupils were you should be allowed to decide yourself who you want to stay in contact with.

The other case concerned a teacher whose colleague is friends with her pupils on FB and who gives "likes" to a few of them, and the teacher in this case became aware of this situation through a private social gathering. The informants were asked how they would react as the teacher. Two of them were quite adamant that teachers should never be on FB with pupils and that there should be guidelines that forbid it. Others were more nuanced. Two informants told how they had posted "likes" to pupils on FB themselves. The teacher who had conducted a theatre project and linked it to a FB group said:

When somebody wrote something like "Now I am finished with the scenography", I gave it a "like". I thought it was different when it was linked to a subject, but maybe somebody thought, "She never gives likes to me".

This teacher had never reflected upon the use of "likes" before discussing this case during the interview. Another teacher had the same reaction and said that she would never give compliments to a pupil for a nice dress because that is connected to the personal and private sphere and also to economy. However, she would approve of a pupil on FB for being a member of the Red Cross.

When it comes to reactions, one informant said that she would have confronted the teacher directly, while another said that she would have contacted the school leader about the news she got from her niece.

How has the topic been treated?

All of the informants confirmed that in teacher education there has been little focus on the ethical issues and challenges connected to the transition from student to teacher concerning

the use of SNSs. Attention has only been given to the practical use of technological devices. Some informants asserted that they have discussed the issue of transition with other students in terms of questions concerning security and privacy when it comes to SNSs. They also claimed that reflecting on cases concerning SNS dilemmas as part of this interview helped them become more conscious of the different perspectives regarding SNSs. Some of the interviewees said that participation in the research study (T1, T2, T3) had helped them to be more reflective and conscious concerning their self-understanding as students and teachers.

To sum up our findings, we know that student teachers participate in SNSs, in this case FB, mainly for social reasons. Through personal or others' experiences, they are aware of the problems it might cause to publish something that should not have been published. They all claimed that during their teacher education they had become more aware of the challenges connected to private and professional use of SNS, and many of them had regulated their use accordingly. They did not want to be friends with their pupils and did not want to know what was going on on the sites even if they knew that pupils had had negative experiences and might need support from their teachers. Anxiety over coming too close to pupils' privacy also seems to be the reason why student teachers and newly qualified teachers do not want to use SNSs for pedagogical purposes.

Discussion

The aim of this study was to focus on challenges and possibilities concerning professional digital competence for teacher education encountering student teachers in transition between a private and a professional position. This study confirms other studies claiming that the main reason for participation in FB is communication with friends (XX 2013). The fact that FB mainly deals with private communication emphasizes why it is important for student teachers to reflect upon their self-understanding as part of their professional learning process during teacher education. More than anything else, SNSs deal with social relations between peers by maintaining existing social ties and by forming new connections (Brandtzæg *et al.* 2010, Ellison, Steinfield and Lampe 2007). One informant, the teacher who had told about her cancer diagnosis, had posted a message she regretted. This is an example of what Kimmons and Veletsianos (2015) call a footprint that can be problematic. Having cancer might not be the reason why a teacher should not get a job, but it is an example of information that might belong to the private sphere (Ess 2009). The other examples of footprints that could be understood as troublesome were not experienced by the interviewees themselves, but were referred to as happening to somebody they had heard of. What is common is the

exemplification of private information that has gone wrong and perhaps left footprints that the teachers regret (Kimmons and Veletsianos 2015) both professionally and in private.

All of the interviewees in the current study claimed that through teacher education they had become aware and conscious of the increasing responsibility they have for protecting their private life when they become teachers. However, these were reflections they had made on their own, and only a few mentioned that they had talked with their fellow student teachers about this and none had mentioned that teacher education addresses the issue. Some of the informants claimed that participation in the current study (T1, T2, and T3) had made them more conscious and aware of challenges connected to the different roles they have in SNSs and how these challenges influence their self-understanding. Malesky *et al.* (2012) emphasize that it is surprising that there has been relatively little discussion regarding the role that SNS's should play in academic settings. Kimmons and Veletsianos (2015) claim that teachers should recognize that invitations to use SNSs are very different from invitations to use other forms of technology because their use could lead to problematic consequences on both social and professional levels.

In Norway, teachers are encouraged by the authorities to communicate with their pupils through SNSs. Whitepaper 11 claims that in order to build bridges between their own world as teachers and the pupils' world, teachers should communicate with their pupils through social media (MER 2008-2009). However, the student teachers in our studies are careful and cautious when it comes to collaboration, and in line with the pupils they are afraid of coming too close and maybe learning private information they did not want to learn (XX 2013). As future professional teachers in an ever more digitized world, the student teachers are supposed to be able to support their pupils in difficult situations, including ethical questions regarding things like online harassment. To become a professional teacher in Norway also includes supporting the positive development of pupils' mental health and preventing bullying among pupils (Lovdata 1998). This responsibility is even more difficult to fulfill when pupils communicate through SNS (XX 2013).

The Norwegian Center for ICT argues for the development of professional digital competence through teacher education. In their report, PDC is defined as the ability to design learning processes through learning objectives, to choose the means and types of evaluation, and to select the appropriate technology to support this relationship (Kelentric *et al.* 2017). The concern is on the part of the teachers' professional role that deals with the teacher as a class leader who provides learning activities for pupils. However, teachers' use of SNSs and the

relation of such use to self-understanding is not mentioned. What this study shows is that becoming a professional teacher in a digital world includes more than being able to design pedagogical learning activities supported by technology. In the transition from student to teacher, student teachers should be aware of, and take responsibility for, how they want to present themselves as professional teachers in social media through what Kimmons and Veletsianos (2014) refer to as acceptable fragments of identity. This means that they have to develop an awareness of their self-understanding as digital teachers. Becoming aware of these challenges should be part of student teachers' professional learning. Further, our study shows that pupils also present fragments of their own identities, and consequently teachers should be able to guide them in how to behave in SNS communication. Participation in SNSs represents a semi-public extension of daily life and private information, and according to Ess (2009) privacy concerning digital media ethics should be reflected upon and discussed. Teachers are responsible for supporting young people in their way of understanding themselves and in how they relate to each other and are to act as good role models. How should student teachers gain competence as future digital professionals? What are the challenges and possibilities that teacher education is facing? It is not enough to be told how to do it.

Consequences for teacher education

How should teacher education meet the challenges of supporting student teachers to become professional digital competent? According to Lund *et al.* (2014), there are two implications for teacher education in supporting student teachers' development of PDC. The first is to *focus on the aspects of digital technologies that are generic to the teaching profession* such as fundamental assumptions about learning and teaching, the epistemological consequences, and how technologies disrupt existing practices. The other implication is that teacher education should be *sensitive to the more specific disciplinary practices and features characterizing each individual school subject* (p. 293). We do not disagree with this; however, we think this is not enough to develop the qualifications that student teachers need in order to act as professionals (Illeris 2009) and to be able to handle tasks in a qualified, correct, or ideal manner (Molander and Terum 2008).

Personal experiences on SNSs are linked to privacy (Ess 2009), and this also seems to be the case in this study where negative experiences are neither discussed by the staff nor among fellow students. Negative experiences may be embarrassing and are kept in secret for pupils as well as students and teachers. The student teachers do not necessarily seem to be aware of

the connection to their pupils' private and sometimes negative experiences. Consequently, the issue of privacy and embarrassment connected to SNSs should be thematized as part of the professional learning process in teacher education.

One possible way is to start with the student teachers' self-understanding as digitally competent professionals because as future teachers they will get few prescriptions for how to behave. Depending on the context, the points mentioned in the report from the Center of ICT will be handled differently. Consequently, teachers should have a consciousness concerning their self-understanding as digitally competent teachers and should have a repertoire of techniques for how to act. Professional development to become a teacher starts long before a student teacher enters teacher education (Körrkö *et al.* 2016). Reflection on personal self-understanding as members of SNSs is a way to start in order to become digitally competent professionals. In the transition from private to professional, student teachers not only have to gain control of their own SNS participation (Kimmons and Veletsianos 2014, 2015), but they also have to develop a consciousness of how to deal with their pupils' communication.

Theories and concepts are difficult to adapt (Hammersness, *et al.*, 2002), and the challenge for teacher education is first of all to create possibilities for reflection (Calderhead 1989, Korthagen and Vasalos 2005, LaBosky 1994, Schön 1987). One of our findings was that the informants in our studies over time perceived the possibility to reflect as useful in regards to transcending from private to professional SNS use. Working with cases might be a particularly powerful means of supporting student teachers in their transition to professional teachers (Hammersness *et al.* 2002). Cases might be based on student teachers' personal experiences as well as on examples from others' practices and experiences with SNS and education (XX 2017).

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