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Student Teachers' Perceptions of the Connection between Literacy, Equality and Digitalization

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Abstract

Digitalization has many implications for the development of equality in societies and is also reflected in education. In a digitalized world, literacy is an essential skill for both individual and societal development. This study explores Finnish student teachers' perceptions of the connection between literacy, equality, and digitalization. The research material consists of professional opinion pieces written by student teachers (N=37). The qualitative study examined student teachers' perceptions of literacy, equality, and digitalization. Student teachers' perceptions concerned pupils' polarizing backgrounds for learning, literacy instruction and the challenge of differentiating classes, deterioration of literacy and other learning, and positive aspects of literacy learning. The results show that student teachers recognize the connection between literacy and digitalization and their broad impact on societal development and equity. As future teachers, they perceived the impact of the development of inequalities on everyday school life and on opportunities to learn key skills as a challenge. The results show that the polarizing starting points for pupils is a worrying trend and challenges the future teacher in a digitalizing world. The results of the study underline that teacher training and teachers are important societal actors and reformers.

Introduction

The digital world is challenging conceptions of literacy. The concept of literacy has changed and expanded with digitalization, and access to media has become commonplace for all citizens. In a digital society, literacy is defined as a holistic umbrella concept that includes multiple literacies, critical literacy, and media literacy (Ribble, 2015; Lanksher et al., 2011). Literacy can be defined as a broad understanding of texts, which can include verbal, pictorial, auditory, numerical, and kinesthetic symbol systems (Kulju et al., 2020, p. 6). In a digital world, literacy is linked to the ability of individuals to function as equals in society. The link between literacy, digitalisation and equality is important to take into account when educating new generations. The literacy, digitalisation and equality dimension is particularly important in teacher training, increasing the potential for impact and implementation. (McDougall et al., 2018.) Societal participation is possible through education and especially through literacy. Literacy is needed in both more traditional textual environments and digital environments. With the widespread digitalization of society, digital environments are particularly prominent in the lives of children and young people.

(Kulju et al., 2020, 8). With digitalization, new skills are essential, and studies show that multi-skilling varies and is partly related to societal inequalities (e.g. Buchholz et al., 2020; Hadjar et al., 2022).

In the Nordic countries, including Finland, schools and equal democracy have a strong bond and a shared history. Comprehensive schools play a significant role in the egalitarian development of Finnish society. The current school system was established in the 1970s and has performed very well in international comparison. In the 2000s, Finland was successful in the PISA test, which built the brand of the Finnish school system and the country (Harju-Luukkainen et al., 2022). Democracy is the foundation of community equality, which is learned by living communally according to democratic principles (Kasa et al., 2021.) The importance of digitalization and media is widely visible in societies, including democracy and education. Digitalisation is a generic term for the digital transformation of society and the economy, characterized by a knowledge base and creativity. (Suwana, 2021; Selwyn et al., 2020; Teräs et al., 2020.) Digitalization and media are expanding and permeating all societal activities, and perceptions of them require research (Cope et al., 2020). Digitalization is seen as an inevitable trend in society and education (Lazarus, 2019). In the school context and pedagogy, digitalization also raises critical remarks (Teräs et al., 2020) on the one hand and new opportunities (Lavonen et al., 2022) on the other. In the context of this article, digitalization is understood as a global phenomenon whereby social functions are increasingly being transferred to online activities.

In the past years research has focused on teachers' important role in pupils' literacy learning process (e.g. Quintana et al., 2005) and in pupils' constructive understanding of digitalization as a societal phenomenon (Leu et al., 2019). Teacher education addresses the broad dimensions of the teaching profession, combining a science-based approach with the everyday dimension of school (Toom et al., 2017). The perceptions of student teachers are built in academic studies, and it is essential to pay attention to the teacher's ability to operate in a pedagogically meaningful way in changing and complex digital environments (Tondeur et al., 2017). Teacher education curricula are also being reformed internationally to take account of new phenomena of the times and the future (e.g. Vaughn et al., 2021). Over the past decade, researchers have made extensive use of the TPACK (technological pedagogical content knowledge) framework (Mishra et al., 2006) to guide the design of teacher education curricula. TPACK is considered a key framework for determining how well teachers integrate technology into their classrooms. Preparing student teachers for effective and appropriate technology integration practices in their own teaching and in diverse learning environments is considered a necessary component of teacher education programs worldwide (Drummond et al., 2017). However, technology and pedagogical perspectives are not enough; deeper societal awareness and personal theories of practice for student teachers and future teachers are needed (Stenberg et al., 2020).

Student teachers' understanding of digitalization and its connection to literacy is essential (Leu et al. 2019) and highlights the societal relevance of the phenomenon (Lankshear et al., 2011). Through research, we can increase our understanding of how schools and education can be transformed to meet the challenges of today's and tomorrow's society, and what the role of the teacher is in this process. It is important for student teachers to adopt a broader understanding of 'literacy' so that they can embrace new literacies in a variety of contexts. It is not just about individual skills, such as reading and writing or acquiring critical knowledge, but about a wider societal

phenomenon. Equal skills for all in primary school and the spread of digitalization to all aspects of society, and an understanding of this development, is essential for all individuals participating in a democratic and equal society. Different literacies build a strong social awareness. It is necessary for student teachers to explore their own relationship with literacy, societal equality, and digitalization. This is a challenging phenomenon that combines micro and macro levels. It is in the school context that the phenomenon becomes concrete, and it is relevant how student teachers link their perceptions of literacy, school, learning, digitalization, and inequality during their studies. These premises constitute an interesting and timely need for knowledge. The research question is: what are student teachers' perceptions of the connection between literacy, equality, and digitalization?

Theoretical Framework

The themes of literacy, modernizing and digitalizing learning environments and social equality are not new, they have a long and interconnected history. In 1994 in the United States. The New London Group (NLG) was formed to develop literacy pedagogy and equality in education. Concerns about the future of education, equality and the teaching of reading and writing in schools were raised as media contexts began to expand. The NLG brought the concept of multi-literacy to the center of new literacy research, pedagogy, and a changing world. The NLG has contributed extensively and profoundly to the research of new literacies. (Kalantzis et al., 2009; 2020.) The group was united by the notion that language and literacy were societal, cultural, and political (Gee 2017). According to NLG (1996), traditional literacy focused on printed text and its teaching was no longer sufficient when the media conveyed audiovisual material. Teaching focused on printed texts would exclude new forms of expression and communication. The NLG sought to empower pupils for their social future from their own starting points. (Cope et al., 2009.)

The conception of literacy has expanded from text and speech to various visual messages and information (Gee, 2007; Ribble, 2015; Lanksher et al., 2011). Concepts related to literacy are used variably and the range of concepts tends to indicate each context more precisely (McDougall et al., 2018). According to Leu et al. (2019) literacy is understood as social activity, not just a cognitive skill of the individual. Also media and images play an important role in social communication (Kress, 2003), and this development is accelerating (Coiro, 2020; Rowsell et al., 2012). Communication contexts and communities are increasingly web-based and web-mediated, making literacy in a media context central. Media literacy and expanding digitization challenges the identification of underlying factors such as algorithms and weighted message content for target audiences (Chacon et al., 2022; Kupiainen, 2019.) Understanding this communication bias is also part of literacy (Coiro, 2020). From these premises the importance of literacy, especially media literacy, has been highlighted (Coiro, 2020; McDougall et al., 2018).

Literacy is considered a key skill for the information society and future generations (Gee, 2007; McDougall et al., 2018). Literacy teaching in school has many important equality objectives. Nordic school systems, including Finland, have been considered stable, equitable and of high quality. However, in Finland, there is little discussion of the relationship between school and society and a desire to keep societal extremes out of school debates, even though this fragments reality. (Bernelius et al., 2016.) The starting point for equality in the Finnish school system is that Finnish basic education is based on a nationally uniform curriculum. Basic education is free of charge, and

everyone receives the same education regardless of socio-economic background or place of residence. In Finland, classroom teachers work independently and base their teaching on the national curriculum. The curriculum is further specified by municipal and school-specific curriculum guidelines. Education policy is not strongly driven by the aim of high rankings in international assessments, but rather by the aim of quality and equality in education (Harju-Luukkainen et al., 2022). The curriculum includes information and communication technology skills, as well as cultural competence, interaction, and expression. Literacy, media education and related programmatic competences are multidisciplinary, cross-curricular entities that are naturally approached from a real-world perspective. (Tarnanen & Palviainen, 2018.) In Finnish comprehensive school curricula, multiliteracy is understood as a broader understanding of literacy without political emphases. Nevertheless, it is recognized that literacy skills are linked to opportunities for equal participation in society (Mullis et al. 2017; OECD 2016).

The importance of literacy is acknowledged and pupils' literacy skills are monitored in international studies. Literacy is studied internationally in studies such as the PISA survey of pupils (Programme for International Student Assessment) (OECD 2001; 2016; 2019), PIRLS (Progress in International Reading Literacy Study) (e.g. Mullis et al., 2017) and ICILS (International Computer and Information Literacy Study) (e.g. Aydin, 2021). Surveys such as PISA, PIRLS and ICILS provide rich information on national educational strengths and areas for improvement. This information is widely used at both national and local level for the benefit of schools and individual learners. Nationally, the differences between Finnish schools in the PISA literacy test are small by international standards. Nevertheless, there is significant variation between schools, even beyond two years of study in primary school. The lowest literacy scores are in schools in suburban areas with a migrant background. (Leino et al., 2019.) One of the determinants is pupils' ability to meet the challenges of digitalization and the information society (Alvermann, 2008). Overall, motivation to read is reduced (Leino et al., 2019), and media is a strong motivator for pupils (Alvermann, 2008).

Literacy covers a wide range of topics, also in the everyday contexts of pupils. Still literacy is often taught from a school and adult perspective (Kupiainen, 2019) and surprisingly rarely in digital learning environments (Coiro, 2020). Often, pupils' existing literacy practices and interests are ignored (Alvermann, 2008). However, pupils' literacy skills are built through a variety of textual and visual practices outside the school context (Coiro, 2020). According to Kist (2000), by reforming literacy and digital learning environment teaching practices, teachers can learn new skills alongside pupils. In bold pedagogical experiments, teachers learn to combine students' interests with analytical and critical tasks. Martens (2010) concludes that media literacy, such as audiovisual literacy or media literacy, has many potentials. Literacy also involves audiovisual texts in the media, including social media channels relevant to pupils, such as Tik Tok, Instagram and YouTube, as well as the world of digital games (e.g. Gee, 2007). Tarnanen and Palviainen (2018) argue that the diversity of knowledge construction should be addressed through goal-oriented practice to develop pupils' multiple literacies. Literacy challenges educators to diversify their pedagogies and justify their actions (Kist, 2000).

For the convergence of digitalisation and literacy in the school context to be sustainable, the phenomenon requires consideration in teacher training (Tarnanen et al., 2018). In teacher training it is central to broadening teacher students' understanding of literacy and its importance. In this way, in the future, students will have greater

opportunities to engage with societal values. (Kalantzis et al, 2009; 2020.) In the Nordic countries, including Finland, classroom teacher education is a university-level master's degree. The aim is to train teachers with a strong understanding of educational theory, a wide range of practical teaching skills and a personally adopted pedagogical vision (Harju-Luukkainen et al., 2022.)

Finnish teacher education curricula aim to provide a broad theoretical basis in educational theory through the content of didactics, educational psychology, educational philosophy and history, and educational sociology (Kansanen, 2014). Teacher education combines theoretical pedagogical content with the everyday phenomena of school life (Bernelius et al., 2016). The fundamental question is how teacher training and teachers identify school development and the societal dimension of teacher work as an essential part of their work. If teacher training has not addressed current issues in school and society, like digitalization and equality, teachers will not have a deep understanding of them in their everyday lives or an understanding of their own professional potential to reform school. (Toom et al., 2017.) As digitalization expands into education, traditional pedagogical concepts and practices are also changing. In hybrid learning environments (Blin et al., 2014), technological learning environments merge with traditional learning environments. Also in teacher training, learning environments are becoming more digital and more prominent. In the future, new teaching practices and pedagogical solutions will make pedagogically appropriate use of digital and other platforms that extend learning context outside traditional context. (Kontturi & et al., 2020.)

The role of education and schools is to both repeat and renew education, learning and teaching, and through this to have an impact on society (Toom et al., 2021). From an international perspective, the Finnish school system has been equal and nationally homogeneous, but the growing school segregation is making the change visible. School segregation manifests itself firstly in the differentiation of school-specific skills across residential areas and secondly in middle-class socially conscious parents choosing a reputable, often weighted education school for their children (Bernelius et al., 2016). Although Finnish society is egalitarian and there is less public discussion about societal class, social marginalities can be identified in schools (Harju-Luukkainen et al., 2022). Students from social margins are also easily marginalized at school and their concerns are not seen (Juva, 2019). Social and societal segregation requires teachers to be sensitive to social developments from both the school's and the pupil's perspective. A particular challenge is that student teachers rarely come from the margins, resulting in a narrow understanding of the social spectrum and hierarchies of the school system (Toom et al., 2021).

Methods

This qualitative study examines Finnish student teachers' perceptions of the connection between literacy, social equality and digitalization. In this study, the concept of literacy is used in its broad and general sense, and understanding of literacy is inherently attached to different contexts. The research question is: What are the Finnish student teachers' perceptions of the connection between literacy, social equality and digitalization? The focus group of the study was on student teachers (N=37), who are adult students. The participants have a previous educational background, a professional degree and some have a previous academic degree in another discipline. Many of the student teachers examined have extensive experience of working life. Many of them have worked as

substitute teachers, mostly without qualifications. From this perspective, student teachers have a strong experiential and perceptual basis for the subject of the study. In Finland, there is fierce competition for access to teacher training and student teachers are highly motivated to train for a profession that is highly regarded nationally.

The material for the study consists of texts produced by 37 student teachers. The student teachers were asked to produce an opinion piece that was professional and personally relevant to their profession. First, the student teachers followed a two-week media debate on school-related topics: literacy, equality, and digitalization. Then they wrote a personal and professional opinion piece on the topic. In this research, we will first examine the perceptions that the student teachers generated in their professional opinion pieces. In the opinion pieces, student teachers expressed a wide range of perceptions, as well as concerns and opportunities related to aspects of the research. From these writings, it is possible to interpret student teachers' perceptions and their relevance to literacy, equity, and digitalization. The study also examines how deeply student teachers' perceptions are connected to social phenomena in the school context, or if they are connected at all.

The data was analyzed using phenomenographic content analysis (Hsieh & Shannon, 2005). The aim of the analysis is to highlight the diversity of student teachers' perceptions of the phenomenon under study. Phenomenography is based on the premise that perceptions are understood as relational, socially constructed in context. (Marton, 1981.) Student teachers' perceptions are individual but constructed over time and are influenced both by previous contexts and by perceptions and experiences during teacher training. The analysis process started by interpreting the data in terms of the dimensions of perceptions and their meanings. In the second stage of the analysis, more specific descriptive categories were created from the data, which were formed in dialogue with the research question: 1) pupils' polarizing backgrounds for learning, 2) literacy instruction and the challenge of differentiating classes, 3) deterioration of literacy and other learning, and 4) positive aspects of literacy learning. Within the different categories of description, variations in perceptions are described.

The validity of qualitative research can be strengthened by triangulation and self-critical observations by researchers at different stages of the hermeneutic research process. The researchers' relationship with the research subject and, to some extent, with the subjects is recognized as both a strength and a weakness. In-depth knowledge of the subject matter enables the researcher to discover new perspectives and, on the other hand, to ignore other perspectives without meaning to (Patton, 2002). In the article, we highlight the research starting points and the context that allow the reader to position the substantive meaning of the research (Atkinson, 2007). The writings produced by the student teachers that form the data for this article are rich in content and are central to the article. The data is comprehensive and quantitatively standard for qualitative research. (Kvale et al., 2009.) The critical reader can make independent interpretations of the data and their meanings and mirror the research objective. The reflection we make on previous research strengthens the reader's evaluative position. (Patton, 2002.) The research provides new and timely information for international and societally sustainable school and education development. Next, we examine the results of the study, student teachers' perceptions of literacy, equity and digitalization by descriptive category.

Results

Pupils' Polarizing Backgrounds for Learning

"Pupils live in differentiating digital realities"

Student teachers expressed their personal experiences and perceptions of both their roles as parents and professionals. The combination of multiple perspectives highlighted the multifaceted dimensions of literacy. The perceptions reflected pupils' unequal starting points for literacy learning. Student teachers were concerned about the time use of pupils in the media. Pupils were modeled on their parents' media behavior. According to student teachers' perceptions, parents' dependence on media consumption was reflected in some pupils' media use in a worrying way. According to student teachers, media and various devices had replaced adult tasks, and pupils were given entertainment devices to give adults some leisure time. Parents had no real opportunity to intervene in media consumption. They pointed out that media companies seek maximum financial gain but have no responsibility for the welfare of pupils. Parents, according to the writings, did not want to disappoint their children and suffered more than the children themselves from restrictions on media use.

Student teachers raised concerns about the distribution of pupils' media skills. This division was seen as partly due to the polarization of family backgrounds. Some pupils' parents have not received any media education which may have had an impact on parents' attitudes and ability to help their children use media responsibly. Low levels of education were also a clear risk factor for uncritical media attitudes, according to student teachers. They recalled the importance of equality in continuous learning for all, including adults. The student teachers' writings reflected on moderation, common boundaries, and rules in media use. These writings conveyed the risk of a cumulative development of inequality. A sustainable, safe, and healthy relationship with the media required guidance and benevolent support. Strict and unconditional bans were not desirable, according to the student teachers. Conversational and respectful interaction was also ideal in relation to media use.

New digital platforms offered new ways to bully, shame, persecute and marginalize. Student teachers were concerned about violence and harassment in the media. Violent school shootings in the media and marginalized messages from subcultures also caused anxiety among pupils. Drugs, racism and political extremism were also a target for underage pupils. According to student teachers, pupils were not necessarily able to interpret the messages conveyed by the media. The dissemination of private information, identity theft and intimidation were also negative phenomena familiar from the media according to the student teachers' writings. Pupils did not understand their actions because reflective thinking had not yet developed. Interpersonal skills, empathy and morality require the development of a caring community.

Student teachers were concerned about children whose parents did not provide guidance and support on digital literacy and ethics. The student teachers' writings revealed that there were inequalities in the starting points for pupils' literacy and media behavior. They highlighted the different home backgrounds of pupils. In some homes, media were consumed uncritically, while some parents guided their children to act responsibly. The student teachers found that different backgrounds posed new challenges in everyday school life.

Literacy Teaching and the Challenge of Differentiating Classes

"Schools are facing a major challenge, the starting points for learning are becoming polarized"

Student teachers identified that schools played an important role in pupils' literacy skills and understanding in a digitalizing world. In their writings, student teachers assessed that pupils needed more broad and critical media literacy skills. Some pupils were left without support from the start because parents did not understand the digitization phenomenon and the new demands it brought with it. Student teachers pointed out the importance of the school in these situations. Pupils needed safe boundaries and presence, which in some cases they could only get at school. On the other hand, student teachers were critical of who had the responsibility for education. Indifferent parents and financially profitable media companies avoided responsibility, and schools were faced with a huge burden of future equity. Student teachers also wrote about how schools could concretely tackle media addiction by creating common rules, such as banning the use of smartphones during breaks. At the same time, pupils could be allowed or forced to engage in social interaction or exercise that was overshadowed by smartphone addiction. The student teachers' opinion pieces also created the perception that pupils were consuming media in their free time. In this case, the media brought together young people who shared the same interests. These writings conveyed the perception that pupils were also learning literacy skills in their leisure time and media consumption, but that it was difficult to identify, support or guide them. Some of the lessons learned can be positive, some harmful. In this case, the media reinforced social attachment, but in a virtual and selective way. On the other hand, the writings conveyed the student teachers' perception that many pupils were lonely and played on the media mostly anonymously. Sometimes, according to the student teachers' writings, situations could escalate in the media and schools had to manage them.

In their writings, student teachers highlighted the pressure of being constantly present on social media, which can be overwhelming for some pupils. On the other hand, they noted that the fear of being left out was real. The experience of being an outsider in social media and relationships was challenging because it was not visible to adults and could not be reacted to quickly. One student teacher reflected on general knowledge of the algorithms that influence the formation of different media content. Understanding how websites work was an essential part of critical media literacy. Student teachers were also concerned about the influence of media and image processing on perceptions of appearance. Image manipulation was normal in the media, but pupils' understanding of it was limited. The distortion of self-image, according to student teachers, caused serious harm. This perception indicates that student teachers had a broad understanding of the media and the different dimensions of literacy.

In their writings, student teachers also reflect on the societal situation and educational policy perspectives. They emphasized the equality and quality of the Finnish school system and the curriculum, which focuses the development of critical thinking in pupils. Student teachers wrote that the inclusion of multi-reading and media skills in the curriculum was valuable. At the same time, student teachers raised concerns that literacy was becoming more divisive in society. Political aspirations or, most recently, pandemic-related phenomena would require critical and knowledgeable literacy, they insisted. Generations that have not received media literacy education are at a disadvantage, according to the teachers' opinion pieces.

Deterioration in Literacy and Other Learning

"Media consumption reduces learning"

Some student teachers wrote about negative perceptions that combined literacy and digitalization. They expressed concerns about the deterioration of writing skills as media texts were shortened and given new forms. Student teachers' perceptions of literacy were partly traditional and narrow. However, few student teachers mentioned the constant evolution of the language and its multiple uses. Some, on the other hand, expressed a need for a static view of language and for grammatical rules to be followed. Still literacy, according to student teachers, meant appropriate and active communication skills in changing and diverse contexts. For example, student teachers mentioned emoticons as enriching language and as part of interaction, but interpreting their meanings required skill. The student teachers appreciated the pupils' ability to embrace new digital media and new ways of communicating and were keen to learn more about them themselves. Teachers emphasized that pupils were enthusiastic about the content and tools that emerged from their own backgrounds. A skillful pedagogue would integrate them smoothly into their teaching, which was mentioned in a few contributions. Student teachers were concerned about pupils' constant multitasking, their inability to concentrate deeply and the strain on their brains under constant stimulation. In such a situation, deep learning was not possible, according to the student teachers' writings. The constant reaction to the beeping of smart devices and the socially determined importance of the reaction delay created constant pressure. Slow reaction to social media feeds was interpreted by student teachers as socially awkward and risked being left alone. According to student teachers, constant social media on-call was a new normal for pupils. In a busy and changing world, media communication was also fast paced. As a result, student teachers considered critical literacy skills to be valuable. Environments and learning environments were enriched and media were an integral part of everyday life. An awareness of this was part of the teacher's pedagogical and literacy skills, which were mentioned in a few writings.

Student teachers also wondered whether media use was a real problem or whether pupils had other problems that were masked by excessive media use. Symptoms of depression and anxiety could be forgotten when immersed in a media bubble for a while. On the other hand, excessive media consumption could be detrimental to well-being if the pupil did not have enough time for sleep, study, or other activities. According to student teachers, time management was an important self-regulation skill. The use of media required a constant balancing act on the part of the pupils, which needed adult support to learn the right conventions in a digital world. The student teachers insisted on the importance of versatile learning and self-critically identified the limitations of their own knowledge and the need for continuous learning.

Positive Aspects of Literacy Learning

"Learning happens all the time in different contexts"

Digitalization and new learning environments in the media also had positive aspects for learning according to student teachers. They mentioned how digitalization "miniaturized" the globe and the connection to different parts of the world enriched pupils' world view. A pupil may have extensive international connections with a particular

interest group. Language skills were also developed. Media was an environment that reinforced equality and agency.

The student teachers pointed out that images provided a rich way of looking at pupils' learning. Taking pictures, observing the environment, processing the images, and relating them to different contexts was a rich and activating learning process. Through pictures, memories, emotions, and connections that could not be conveyed through words were connected. Student teachers also highlighted the polyphonic nature of selfies. The selfie was about defining and processing oneself in different contexts. Adults' attitudes to phenomena that were unfamiliar to them should not be arrogant or judgmental. Selfies were sometimes perceived by student teachers as selfish behavior, but they understood that selfies could be much more than that. Selfies told peers about being present and sharing personal thoughts. Critical comments were also made, such as the disturbing dependence on online life and the reactions of followers. Selfies shared in the media could also be used for other purposes that could harm the person taking the picture.

The student teachers recalled that pupils needed constant conversational and appreciative guidance, especially on ethical issues. New media environments require new skills, such as social and ethical skills related to public writing. According to student teachers, a responsible member of society in the future would have an adequate level of digital literacy, social and cultural skills, and critical thinking. Literacy would help individuals to fulfill themselves while respecting others in changing contexts. According to the student teachers, the dialogue was not coming to an end, but would take new forms.

The student teachers recalled the importance of a positive encounter in different media contexts as society becomes more digital. For example, through meaningful communication on digital platforms, teachers could strengthen the dialogic collaboration with parents and support individual pupil learning. Various digital platforms were in everyday use in schools, but student teachers longed for a more creative use of them. They expressed concerns about their own literacy skills and their understanding of the rapidly changing phenomena of digitization. There was a wealth of content in teacher education that they felt needed to be boldly renewed. Digitization and literacy were key and constantly changing phenomena, according to student teachers. The structuring of the complexity of the phenomenon reinforced their understanding of its pedagogical and social relevance. It was important to understand what was relevant to the pupils and to relate it to their teaching. As one student teacher summarized: "The school aims to reduce the gap in literacy between pupils by using diverse learning environments. The broader aim is equality, well-being, democracy and active citizenship."

Discussion

The results of this study clearly show the importance of digitalization as a societal phenomenon and its impact on education and students' key skills in relation to equality. There is a clear link between digitalization, literacy, and an equal society, now and in the future. The starting point for this study is timely and recent, with literacy and digitalization at the crossroads of major societal developments. This study seems to show that the combination and examination of the perspectives of literacy, digitalization and gender equality in Finnish teacher education is

taking place. However, there is a wide variation in student teachers' perceptions of the link between social understanding and literacy. Student teachers are aware of the different and polarizing starting points of pupils, which can be balanced by the teacher and the school. This study shows that student teachers show promise in developing an understanding of literacy and its importance, as well as a genuine desire to teach it to their pupils. Student teachers articulated in concrete terms the dimensions of literacy and the variability of school realities. Student teachers' perceptions of the teacher and the school as a society were unclear in places. Student teachers had different perceptions of the challenging relationships between literacy, digitalization and gender practices and structures. Some teachers' reflections focused on concrete concerns and challenges that accumulate for the teacher and did not see positive solutions. Some teachers understood the importance of literacy, digitalization and gender equality as social entry points and recognized the importance of the teaching profession as a force for educational equality. Many student teachers emphasized their understanding of digitalization and the importance of literacy as a future skill. A few student teachers reflected deeply on what unequal literacy skills can lead to and the threats to this development. Teacher education must continue to challenge student teachers to reflect on their own relationship with literacy and to broaden their understanding of the links between digitalization and equality.

The impact of digitalization is constantly expanding globally and socially. As Kalantzis and Cope (2009; 2020) and Coiro (2020) point out, teachers have a key role to play in understanding the dimensions and significance of literacy. They teach future generations the key skills of participation and understanding. The deep roots of literacy lie in democratic and egalitarian starting points for participation in society, as previous studies (e.g. Kupiainen, 2019; Mullis et al., 2017; Selwyn et al., 2020; Suwana 2021) have shown. The topic is important and timely, as global digitalization is seriously challenging traditional notions of the value and ethics of democracy. Social media is highly interactive and requires good interaction skills and a critical attitude. Compared to traditional literacy, the reality is more demanding; contexts change, and different skills intersect seamlessly. Today's generations are used to and have grown up with digital services, it is a natural environment for them. Concepts of reading, democratic equality and digitalization are constantly being updated. Teachers need to recognize the changing reality and be open to change (also Kist, 2000).

The student teachers' reflections on a digitalized and democratic society were ultimately thin, which has also been found in previous studies (Toom et al., 2017). With some exceptions, they did not see the structures of the school system or question the systemic development of school and society. This raises concerns about how the relationship between society and education is constructed in teacher education and whether future teachers can reform the school. In their opinion pieces, student teachers discussed the links between literacy, equality and digitalization. The perceptions illustrate a strong and worrying polarization (also Bernelius et al., 2016; Harju-Luukkainen et al., 2022). The student teachers' opinion pieces highlighted the concrete processes of inequality development. Pupils who receive care and attention at home also receive guidance in literacy, ethical media use and grow up as responsible media users. This result confirms previous studies (Mullis et al., 2017; Bernelius et al., 2016). A significant risk is seen in pupils who are left alone as media consumers from an early age. How to equitably engage them in digital learning environments in a rich and responsible way, and to make the most of their learning. The role of schools in fostering an equitable digital culture is a contradictory one. Bridging unequal

starting points challenges not only pedagogy and teachers, but also social and educational equality in the growing digitalization landscape.

In a polarized society, understanding the different perspectives of digitalization, mediated culture and literacy is essential and necessary. A possible undesirable future will continue to polarize: teachers' literacy skills will become more diverse, skilled teachers will seek out prestigious schools, and parents will place their children in these high-status schools. Societal equality and social harmony are threatened. The social dimension of teacher education should not remain superficial, and the history of important phenomena should be recognized. In the future, it is important to examine teacher education curricula from a societal perspective and to introduce structural reforms in school systems to strengthen democracy. In the future, there is a need for national teacher education curricula and the development of internationally recognized factors of social inequality. Social awareness and equity aspects of teacher education are of international importance.

Declaration of Interest Statement

The authors report there are no competing interests to declare.

References

- Alverman, D. (2008). "Why Bother Theorizing Adolescents' Online Literacies for Classroom Practice and Research? *Journal of Adolescent & Adult Literacy*, 52(1), 8-19.
- Atkinson, R. (2007). The life story interview as a bridge in narrative inquiry. In D.J. Clandinin (eds.) *Handbook of narrative inquiry. Mapping a Methodology*. Sage, 224-245.
- Aydin, M. A. (2021). Multilevel modeling approach to investigating factors impacting computer and information literacy: ICILS Korea and Finland sample. *Educ Inf Technol*. <https://doi.org/10.1007/s10639-021-10690-1>
- Bernelius, V. & Vaattovaara, M. (2016). Choice and segregation in the 'most egalitarian' schools: Cumulative decline in urban schools and neighbourhoods in Helsinki, Finland. *Urban Studies*, 53(15), 3155-3171.
- Blin, F., & Jalkanen, J. (2014). Designing for language learning: agency and languaging in hybrid environments. *APPLES: journal of applied language studies*, 8(1), 147-170. <http://urn.fi/URN:NBN:fi:jyu-201405141714>
- Buchhoz, B.A., DeHart, J. & Moorman, G. (2020). Digital Citizenship During a Global Pandemic: Moving Beyond Digital Literacy. *Journal of Adolescent & Adult Literacy*. 64(1), 11-17. <https://doi.org/10.1002/jaal.1076>
- Cope, B & Kalantzis, M. (2009). "Multiliteracies": New Literacies, New Learning, *Pedagogies: An International Journal*, 4(3), 164-195. 10.1080/15544800903076044
- Cope, B. & Kalantzis, M. (2020). Futures for research in education, *Educational Philosophy and Theory*. 10.1080/00131857.2020.1824781
- Chacon, A., Kausel, E.E. & Reyes, T. (2022). A longitudinal approach for understanding algorithm use. *Behavioral Decision Making*. <https://doi.org/10.1002/bdm.2275>


- Coiro, J. (2020). "Toward a Multi-faceted Heuristic of Digital Reading to Inform Assessment, Research, Practice, and Policy." *Reading Research Quarterly*, 1-23.
- Council of the European Union. (2018). Council recommendation of 22 May 2018 on key competences for lifelong learning. *Official Journal of the European Union*, C189, 4.6.2018, Annex. [https://eurlex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:32018H0604\(01\)&rid=7](https://eurlex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&rid=7)
- McDougall, J., Zezulcova, M., van Driel, B. & Sternadel, D. (2018). 'Teaching media literacy in Europe: evidence of effective school practices in primary and secondary education', NESET II report. Luxembourg: Publications Office of the European Union. doi: 10.2766/613204.
- Drummond, A. & Sweeney, T. (2017). Can an objective measure of technological pedagogical content knowledge (TPACK) supplement existing TPACK measures? *British Journal of Educational Technology*, 48, 928-939.
- Finnish National Agency for Education (2016). Perusopetuksen opetussuunnitelman perusteet 2014. [Curriculum for basic education 2014] Retrieved at: https://www.oph.fi/sites/default/files/documents/perusopetuksen_opetussuunnitelman_perusteet_2014.pdf
- Gee, J.P. (2007). *What Video Games Have to Teach Us about Learning and Literacy*. St. Martin's.
- Gee, J. P. (2017). A Personal Retrospective on the New London Group and Its Formation. In F. Serafini & E. Gee (ed.) *Remixing Multiliteracies. Theory and Practice from New London to New Times*. Teachers College Press, 19-34.
- Hadjar, A., Alieva, A., Jobst, S., Skrobanek, J., Grecu, A., Fewinne, I., de Moll, F. & Toom, A. (2022). PIONEERED: Elaborating the link between social and educational policies for tackling educational inequalities in Europe. *Sozialpolitik*. 1. <http://dx.doi.org/10.18753/2297-8224-183>
- Harju-Luukkainen, H., Sulkunen, S. & Maunula, M. (2022). Cross-National Achievement Surveys and Educational Monitoring in Finland. In L. Volante, S.V. Schnepf, & D.A. Klinger (ed.) *Cross-National Achievement Surveys for Monitoring Educational Outcomes. Policies, Practices, and Political Reforms within the European Union*. Office of the European Union, DOI: 10.2760/406165
- Harju-Luukkainen, H., Vettenranta, J., Wang, J. *et al.* (2020). Family related variables effect on later educational outcome: a further geospatial analysis on TIMSS 2015 Finland. *Large-scale Assess Educ*, 8, 3.
- Hsieh H-F, Shannon SE. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*. 15(9):1277-1288. <https://doi.org/10.1177/1049732305276687>
- Juva, I. (2019). Who can be 'normal'? Constructions of normality and processes of exclusion in two Finnish comprehensive schools. Helsinki University, *Education Research*, 58.
- Kansanen, P. (2014). Teaching as a Master's level profession in Finland: Theoretical reflections and practical solutions. In O. McNamara, J. Muraay & M. Jones (ed.) *Workplace learning in teacher education. International practice and policy*. Springer, 279-292.
- Kasa, T., Rautiainen, M., Malama, M., & Kallioniemi, A. (2021). 'Human rights and democracy are not self-evident': Finnish student teachers' perceptions on democracy and human rights education. *Human Rights Education Review*, 4(2), 69-84. <https://doi.org/10.7577/hrer.3937>
- Kist, W. (2000). "Beginning to Create the New Literacy Classroom: What Does the New Literacy Look Like?" *Journal of Adolescent and Adult Literacy*, 43, 710-718.

- Kontturi, H., & Seppänen, V. (Eds.). (2020). *OpenDigi toimintamallin käsikirja – opettajat oppimistaitojen ja digipedagogiikan kehittäjäyhteisöissä*. [OpenDigi policy handbook - teachers in learning skills and digital pedagogy communities.] Oulun yliopisto. Oulun yliopiston oppimateriaalia. Kasvatustieteet, 13. <http://urn.fi/urn:isbn:9789526226941>
- Kress, G. R. (2003). *Literacy in the new media age*. London: Routledge.
- Kupiainen, R. (2019). *Media Literacy in Finland*. Encyclopedia of Media Literacy. <https://doi.org/10.1002/9781118978238.ieml0147>
- Kvale, S. & Brinkmann, S. (2009). *InterViews: learning the craft of qualitative research interviewing*. Sage.
- Lankshear, C. & Knobel, M. (2011). *New Literacies: Everyday Practices and Social Learning*. McGraw-Hill/Open University Press.
- Lavonen, J., & Salmela-Aro, K. (2022). Experiences of moving quickly to distance teaching and learning at all levels of education in Finland. In *Primary and Secondary Education During Covid-19* (pp. 105-123). Springer, Cham.
- Lazarus, J. (2019). Hacking the MOOC: Towards a postdigital pedagogy of critical hope. *Postdigit Sci Educ*, 1, 391–412.
- Leino, K., Ahonen, A. K., Hienonen, N., Hiltunen, J., Lintuvuori, M., Lähteinen, S., Lämsä, J., Nissinen, K., Nissinen, V., Puhakka, E., Pulkkinen, J., Rautopuro, J. Sirén, M., Vainikainen, M.-P. & Vettenranta, J. (2019). *PISA 18 ensituloksia: Suomi parhaiden joukossa*. [PISA 18 first results: Finland among the best] Opetus- ja kulttuuriministeriön julkaisuja 2019:40.
- Leu, D.J., Kinzer, C.K., Coiro, J., Castek, J., & Henry, L.A. (2019). New Literacies: A dual level theory of the changing nature of literacy, instruction, and assessment. In D.E. Alvermann, N.J. Unrau, M. Sailors, & R.B. Ruddell (Eds.), *Theoretical models and processes of literacy*. 7th ed., 319-346. Taylor & Francis. <https://doi.org/10.1598/0710.42>
- Martens, H. (2010). Evaluating media literacy education: Concepts, theories and future directions. *Journal of Media Literacy Education*, 2(1), 1-22.
- Marton, F. (1981). Phenomenography – describing conceptions of the world around us. *Instructional Science* 10, 177-200.
- Mishra, P. & Koehler, M. J. (2006). Technological pedagogical content knowledge: a framework for teacher knowledge. *Teachers College Record*, 108, 1017-1054.
- Mullis, I. V. S., Martin, M. O., Foy, P. & Hooper, M. (2017). *PIRLS 2016 international results in reading*. Boston College, TIMSS & PIRLS International Study Center. <http://timssandpirls.bc.edu/pirls2016/international-results/>.
- NLG, The New London Group (1996). A Pedagogy of Multiliteracies: Designing Social Futures. *Harvard Educational Review*, 66(1), 60-92.
- OECD (2001). Messages from Pisa 2000 – PISA 2000 Publications. OECD Publishing. <https://www.oecd.org/education/school/programmeforinternationalstudentassessmentpisa/34107978.pdf>
- OECD (2016), *PISA 2015 Results (Volume I): Excellence and Equity in Education*. OECD Publishing. <https://doi.org/10.1787/9789264266490-en>
- OECD (2019). PISA 2018 results (volume I): What students know and can do. Paris: OECD Publishing.

- Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Sage.
- Quintana, C., Zhang, M., & Krajcik, J. (2005). A framework for supporting metacognitive aspects of online inquiry through software-based scaffolding. *Educational Psychologist*, 40, 235-244. https://doi.org/10.1207/s15326985ep4004_5
- Ribble, M. (2015). *Digital citizenship in schools: Nine elements all students should know* (3rd ed.). Eugene, OR: International Society for Technology in Education.
- Rowell, J., McLean, C., & Hamilton, M. (2012). Visual literacy as a classroom approach, *Journal of Adolescent & Adult Literacy*, 55(5), 444-447. <https://doi.org/10.1002/JAAL.00053>
- Selwyn, N. & Gašević, D. (2020). The datafication of higher education: discussing the promises and problems, *Teaching in Higher Education*, 25(4), 527-540.
- Stenberg, K. & Maaranen, K. (2020). Promoting practical wisdom in teacher education: a qualitative descriptive study, *European Journal of Teacher Education*. 10.1080/02619768.2020.1860012
- Suwana, F. (2021). Content, changers, community and collaboration: expanding digital media literacy initiatives, *Media Practice and Education*, 22(2), 153-170, DOI: 10.1080/25741136.2021.1888192
- Tarnanen, M. & Palviainen, Å. (2018). Finnish teachers as policy agents in a changing society. *Language and Education*, 32(5), 428-443. 10.1080/09500782.2018.1490747
- Teräs, M., Suoranta, J., Teräs, H. & Curcher, M. (2020). Post-Covid-19 education and education technology `solutionism`: a seller's market. *Postdigital Science and Education*, 2, 863-878.
- Tondeur, J., Aesaert, K., Pynoo, B., van Braak, J. Fraeyman, N. & Erstad, O. (2017). Developing a validated instrument to measure preservice teachers' ICT competencies: Meeting the demands of the 21st century. *British Journal of Educational Technology*, 48(2), 462-472. <https://doi.org/10.1111/bjet.12380>
- Toom, A., Pietarinen, J. Soini, T. & Pyhältö, K. (2017). How does the learning environment in teacher education cultivate first year student teachers' sense of professional agency in the professional community? *Teaching and Teacher Education*, 63, 126-136.
- Toom, A. & Husu, J. (2021). Analyzing practice, research, and accountability turns in Finnish academic teacher education. In Mayer, D. (eds.) *Teacher education policy and research: Global perspectives*. Springer.
- Vaughn, M., Scales, R.Q., Stevens, E.Y., Kline, S., Barrett-Tatum, J., Van Wig, A., Yoder, K.K. & Wellman, D. (2021). Understanding literacy adoption policies across contexts: a multi-state examination of literacy curriculum decision-making. *Journal of Curriculum Studies*, 53(3), 333-352.

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