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Mother tongue language teaching with digital tablets in early childhood education: A question of social inclusion and equity

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Literacy in the twenty-first century is changing to become more multicultural, multilingual and multimodal as people are using more digital technologies in their everyday lives. This article reports on what these changing conceptions of literacy mean for mother tongue teaching by exploring why, how and when mother tongue teachers in preschools use digital technologies. Regarding literacy as a social practice, the article focuses on emerging patterns in the use of digital tablets in a large Swedish municipality, providing empirical data (questionnaires, focus groups, and interviews) from mother tongue teachers working together with hundreds of children aged 1-6 at preschools. The study found significant differences in the levels of digital technologies used among mother tongue teachers. What seems to matter is whether or not the teachers themselves are frequent and engaged users of digital technologies in their own everyday lives. Most of the teachers reported that they are integrating digital technologies in their teaching even though they have officially a restricted access to digital devices. Teachers expressed a desire to use the digital tablet as a tool to access and create knowledge by creating an opportunity for innovation, specifically for language groups that are not represented in the majority context of teaching materials or not suitable for a secularized society due to, for example, religious or political differences. The article concludes by stating that digital tablets are convenient mother tongue teaching tools but that teachers are asking for policies that can point the way as to how to implement digital resources, since tablets offer social inclusion and equity but also involve ethical dilemmas.

Introduction

We live in an epoch of migration and diversity in which monolingualism is no longer the norm. Indeed, in many preschools and schools in Sweden, there are children with a wide range of different home languages, which makes mother tongue education increasingly important to implement. The Swedish curriculum for preschool *Läroplanen för förskolan* (Skolverket, 2011) states that preschools are meeting points both socially and culturally.¹ Concerning children with a mother tongue other than Swedish, one of the preschool's tasks is to give the children the possibility to develop their cultural identity and both the Swedish language and their mother tongue.

Cummins, Bismilla, Chow, Cohen, Giampapa, Leoni, Sandhu and Sastri (2005) state that it is important for children's mother tongue language, as well as their learning of a second language, to embrace differences and highlight their mother tongue. This is especially important for the development of

¹ Preschool in Sweden enrolls about four fifths of all children between 1 and 6 years of age. It is directed by a preschool curriculum since 1998 but is not mandatory. Children are there approximately 8 hours/day, five days/week.



children's identity. By welcoming a child's home language into the classroom, children are actively engaged in literacy. In schools - but not preschools - it is mandatory to provide mother tongue education driven by mother tongue teachers in Sweden. Despite this, several municipalities also include preschools. In the municipality in this study, mother tongue teachers work itinerantly, 30 minutes per child per week, which means that the teachers are visiting several preschools each day. The goal for different children's mother tongues at preschools in Sweden is to give young children the means and motivation to develop their mother tongue language and cultural identities, as well as to increase their knowledge and respect for different languages, cultures, traditions and religions (Skolverket, 2011).

The increasing use of digital technologies and multiple modes of communication have changed the practices of everyday life and education for both adults and children in Sweden. This study aims to outline ways in which mother tongue teaching is changing due to the developments in digital technologies.

Mother tongue teachers in preschools using digital technologies and changing conceptions of literacy

We argue that mother tongue language education needs to exceed its traditional goals by responding to the explosion of new media technologies that make it possible for teachers to appropriate, create and recirculate media content in translingual and new ways for various languages. The important point in the context of this article is to highlight a need for new multimodal solutions that will increase access to meaningful content for multilingual preschoolers. This study is grounded on research that draws on literacy and thereby a mother tongue ability to understand and produce information however presented (Knobel & Lanksher, 2006), using, for example, complex images and sounds (Lanham, 1995); i.e. multimodal formats, as presented by, for example, Kress (2010) and van Leeuwen (2005). Preschool children find learning more playful and engaging due to these multimodalities, facilitated by digital technologies, and they can participate with their senses and bodies long before they can read or write (Kjällander & Moinian, 2014). This participatory aspect can be documented digitally at preschools by mother tongue teachers and shared easily with parents and preschool teachers, inviting both groups to collaborate with a focus on practicing their mother tongue. The research on digital technologies can be used here to highlight how change comes when mother tongue teachers acquire the knowledge to integrate information and communication technology (ICT) with a variety and depth in their teaching, rather than using ICT merely as efficiency aids and extension devices (McCormick & Scrimshaw, 2001).

New technologies and multilingual education

Understanding multilingualism from a sociocultural perspective means that diverse languages can only be understood in the diverse contexts of social, cultural, political and economic practices. Language practices are linked to processes of power and social reproduction in educational contexts (Bernstein, 1971; Bourdieu, 1991). Moreover, new media and digital technologies are viewed as being linked to similar processes, creating new forms of "digital divides" and "digital gaps" (Buckingham 2009; Plowman & Stephen 2005a; Livingstone, 2002). This research is based on the junction points and the complementary potentiality of the two themes mentioned above: literacy practices and digital technologies. The current research on mother tongue education underlines that mother tongue language education is embedded in complex social, cultural and economic contexts that cannot be restricted to only classroom activities, such as reading and writing (Luke, 2015; Bolling, Honig, Neumann & Seele, 2015). Mother tongue education that limits learning languages to traditional alphabet text-oriented performance are identified as being at odds with the global and changing mobile language possibilities and the familiar and fundamental features of children's everyday lives in different contexts. Children can read and produce advanced multimodal literacies, such as images, sounds and spatial dimensions on the screen, from an early age. Limited literacies based on written texts can be less



challenging for these children (Kjällander & Moinian, 2014). This study draws on research on digital technologies as being tools that can be used in order to make mother tongue teachers, young children and their families the creators, designers and experts of their own languages (Luke, 2015). Lindahl and Folkesson (2012) highlight how preschool every day practice develops in line with social changes, such as digitization, and how teachers must find ways to concern children's active participation. Their research shows how ICT in preschool can be perceived as a friend and as a foe by preschool teachers. The arguments made to justify ICT in preschool had, among other things, to do with enabling the child to be a citizen. Sandvik, Smørddal, and Østerud's (2012) research shows how digital tablets and apps can provide opportunities for preschool children to engage in useful and purposeful literacy interactions, something that is seen in an overview of technology and literacy in early childhood educational settings (Burnett, 2010). A body of empirical research recognizes that digital technologies are able to empower young children from diverse ethnic backgrounds by acknowledging the values of their local and home languages in line with official languages (Luke, 2015; Bolling, Honig, Neumann & Seele, 2015). In activities where pre-schoolers and teachers explore together with new tools, such as digital tablets, practice can be changed and they can together create new meaning and possibilities of learning and development (Lindahl & Folkesson, 2012).

Research project on digital tablets in mother tongue early childhood education

Design of study, production of results and analytic process

This study was designed to explore mother tongue teachers' perceptions about their activities with digital technologies in preschools. Data collection was conducted during one term, consisting of: a) 43 textual questionnaires; and b) 10 formal semi-structured interviews with mother tongue teachers².

The questionnaire's design intended to map the teachers' engagement with new technologies and to find out if they wanted to take part in an interview. The researchers presented their study in a monthly information meeting for mother tongue teachers. Teachers representing some of the largest language groups in Western Europe, as well as mother tongue teachers from Middle Eastern areas and Far East Asia, announced their interest to take part in the study. In total, all 43 teachers who attended the meeting responded to this questionnaire. After mapping the diversities presented in knowledge, usage and languages (the research questions how, when, and why?), 10 participants were chosen for interview guided by dispersal; i.e. the focus was to interview a broad scope of participants - broad in sense of different languages and broad in use of digital technologies. Interviews were made similarly by two of the researchers and generated a vast amount of empirical material. A dialogical process engaging and encouraging mother tongue teachers to explain, give examples and illustrate their everyday practice of teaching with digital technologies was also undertaken.

Ethical considerations

The project met the guidelines as described in *Good research practice* by The Swedish Research Council (2011). Guidelines about informed consent were respected and all teachers were informed both in written and spoken form. In collaboration with the centre of mother tongue teaching for preschools, researchers participated in the mother tongue teachers' meeting, which took place every month. A risk-benefit analysis was made wherein the interests of science and society never challenged the protection of the teachers' well-being and safety. In the questionnaire and interviews, the participants' identities were protected by the use of code keys and by anonymizing the answers.

² Linked to the project was a larger parallel research project (Kjällander, 2016) in the same municipality, where mother tongue teachers and preschool teachers were interviewed together in focus groups.



Although empirical material was limited and only teachers' narratives *about* their teaching were presented, the questionnaires and interviews revealed some interesting points.

A view on the use of digital tablets by mother tongue teachers

Results from the questionnaire showed the mother tongue teachers' use of and attitudes to digital devices. Asked about what devices they used, the teachers answered as follows: a slight majority used their mobile phone; almost one fourth used a digital camera; and slightly less than half used computers and tablets³ on a regular basis. A slight majority of the teachers reported that they used these devices always or often. About half of the teachers' purpose for using ICT was to prepare lessons, to teach, to document and to communicate with parents. More than one third used ICT to communicate with colleagues.⁴ A majority had at least once used the internet to develop pedagogic material. Of those who answered a question about applications, a slight majority showed their knowledge of available apps for use in education. This means that almost every second teacher experienced a lack of adequate apps knowledge. Asked about competences, the majority felt comfortable with the ICT-related education they were offered by their employer.

The mother tongue teachers reflected upon producing their own teaching materials by involving children as producers of their own culturally significant mother tongue texts and images. Most teachers indicated that they used digital technologies for documentation, as well as to prepare lessons and to contact parents and colleagues, but their views about the potential positive or harmful effect of technologies on children differed significantly. The teachers discussed the risks associated with digital technologies and indicated the importance of teaching children and even their families to critically analyse and examine the content and material available on the internet.

Awaiting aims, guidelines or policies

Initially, there was a dilemma worth discussing; mother tongue preschool teachers themselves appreciated the lack of clearly stated aims or written guidelines regarding digital devices in mother tongue language, which the following transcript⁵ may illustrate:

A: I am thinking, yes, we do also talk about how to work with issues of gender and bilingualism. I think there is a little fear there but perhaps that is about ignorance

B: Sure, fear is important.

A: ... to do things right and to make mistakes ...

B: To make good judgements and accept mistakes, sure...

A: The question I thinking about right now, is what is this really about? ...and what are we waiting for? Is this research? Do we need to get an approval?

B: Yes. That is really important.

Different factors are discussed here, such as the teachers' fear of the new digital environment, but also factors that constitute a teacher's role as being a teacher in a modern digitalized society. They discussed a possible reason for their reservations about new technology, perhaps also the lack of research within this area. There is a lack of research in the delimited field of digital tablets and mother tongue teaching, but there is much ongoing research about, for example, ICT in early childhood or computers and language education. Teachers often asked for concrete guidelines, or even a national

³ multiple answers were possible

⁴ multiple answers were possible

⁵ Transcript from a focus group in the larger parallel research project (Kjällander, 2016).



strategy, outlining aims and expectations on ICT in education. This must be set in context with the vast amount of empirical video ethnography collected at different preschools in a related research project (Kjällander, 2016), illustrating how preschool and mother tongue teachers orchestrate education, positioning themselves as didactic designers designing the content together with the children. In their focus groups, the teachers spoke about their professional development and the very rapid pace of change, something that characterized the teachers as didactic designers (Selander & Kress, 2010).

An example of child empowerment through digital technologies

The circulation of cultural and pedagogic resources online follows the circulating patterns of economic resources in real life offline environment. Thus Western European languages in general and English in particular are more frequently used online as well as offline for business and education. Consequently for non-European/non-Western language groups, an obstacle to the implementation of flexible multilingual education is related to the development of teaching materials. It is an unfortunate fact that there are not enough teaching and learning materials in many lesser-used languages, possibly because they are not economically viable. As it is difficult to teach without pedagogical materials available in a language, the use of the internet and digital technologies becomes necessary. This leads to a variety in usage, although technology can also reinforce social inequalities. Mother tongue teachers from outside of Western Europe presented examples of how they muted the English/Swedish voices of popular applications and video clips on YouTube in order to communicate with children in their own mother tongue. Quite often, mother tongue teachers with their unique access and comprehension of their own language and culture expressed an intention to use the possibilities of digital media to create innovative and new materials for language development for small and rare language groups. They explained that, if they possessed a digital tablet, they would indeed be able to search, find, and download original pedagogical and valuable cultural resources from their own languages.

Yes, then I could plan in a different way. Nowadays I never know what is going to happen. Then I think about "Okay, we use that app". You have to see how it works with the children. I can think about it beforehand, which app we should use and why, but then together with the child it might work in a totally different way.

In collaboration with the international network of teachers in the same language group, new teaching materials can be prepared and shared on the internet (Petersen, 2015) in, for example, special interest groups in social media, especially Facebook.

To use private devices: Right, wrong or simply a practical necessity?

The majority of teachers used some or even several technological devices in their everyday lives, for leisure activities, searching for information, and communication purposes in their mother tongue as well as Swedish. Mother tongue teachers frequently used their own private digital devices to prepare and conduct their teaching, as well as to document and communicate with parents and colleagues. This is not correct, according to children's rights, as we need to protect children's integrity, allowing only the preschool to document pre-schoolers (SFS, 1998, p. 204).

One mother tongue teacher used a private digital tablet, buying applications with her own money because he wanted to use those applications:

*...but I have to pay that from my own money, but I don't care about that. That's okay...
No, actually it's not okay, you have to show your employer that you need some devices to work with...*



This shows the dilemma some mother tongue teachers experience; on the one hand, they use their own devices and buy special applications they want to use in their teaching; on the other hand, they realize and point out that it's the employer's responsibility to equip them with digital devices. This has led to all kinds of documentation using the official digital devices that are possessed and regularly checked and controlled by preschools. However, mother tongue teachers tend to use their own mobile phones for documentation, even though they officially are asked not to save photos of their pre-schoolers on their personal devices:

I can't keep the photos on my mobile phone all the time; I'm not supposed to have any at all, then it's more for the moment, maybe someday afterwards. You cannot compare "Look, we did it this way and it resulted in this" [...] If I had my own tablet at work, I could keep them and continue.

This teacher points out the dilemma of documentation: she wants to reflect together with the pre-schoolers about their learning progression, but, for this, she needs to save documentation on her own mobile phone. Both those teachers who use and those who don't use their own private tablets are convinced of the tablet's potential in mother tongue education. Asked if they could choose one single digital device they could get from the employer, they mention that they would choose a digital tablet due to mobility, flexibility of apps, and documentation.

Access and apps - availability difficulties

Those mother tongue teachers who use tablets available in the preschools experience several problems. This concerns both the scope of apps and the limited possibilities for installing apps they would like to use in their lessons. In addition to this, the teachers can't be sure of having access to the device when they arrive at the preschool, which makes the planning of activities difficult. One mother tongue teacher expressed her frustration at using the preschool's tablet:

In a way I feel I need a flow with the same device and that I have the time after we've done something. If I do not have the control to download an app quickly, all time with the child has come to an end. So when I am at a kindergarten I just don't have time to take care about these things.

In this case, the problem is that the application that the teacher wants to use hasn't been installed onto the preschool's tablet. Due to the lack of time, installing an app is not an option. Practically, it means that either mother tongue teachers should be able to receive the necessary technical support, or they should have the right to possess their own working tablets in order to enable their teaching.

Digital tablets facilitating social inclusion

A lot of attention has been paid to highlighting official statistics revealing that a majority of pre-schoolers in Sweden have access to, and experience with, digital technologies before beginning preschool (Statens Medieråd, 2014). In the interviews, mother tongue teachers indicated that they encountered not only digitally socialized pre-schoolers, but also those who have very limited access and experience with digital technologies:

There are actually some areas around here where families do not own any iPads or laptops at home. Unfortunately, even preschools have no iPads in these areas. It should be the other way round, as it wouldn't be a problem if families who own digital technologies and had the competence did not use it at preschool, [...] but for kids in some areas the only place they can use and learn with iPads is at their preschool.



Mother tongue teachers in this study highlighted the social inclusion and equity problems related to digital technologies. The families with less socio-economic resources usually lived in areas with less digital resources at preschools, schools and public libraries. Unemployed parents, parents on long periods of sick leave and newly arrived immigrants did not usually possess digital technologies as they were too expensive. Preschools in these poorer areas ironically did not possess or use digital technologies. Mother tongue teachers in this study believed that if they did possess digital resources, such as tablets, they would be able to bridge this socio-economic digital gap.

Integrating digital technologies as a tool for increasing motivation

Another teacher explained how digital technologies could be effective in motivating children who showed no interest or engagement in other forms of mother tongue education:

A: There are a few kids who are definitely reluctant to join me for mother tongue training and hesitate or show no motivation. I have then tried to encourage them with the use of my own mobile phone or iPad and it works for them.

B: I can, for example, use the same application or game they have at home or preschool but with the mother tongue translation or even sometimes I just shut down the sound and use the images and animations as an invitation to communicate. Not all children need this kind of motivation but some of them definitely need it; if I am going to be able to catch their attention, and talk to them, I need an iPad.

Another respondent contrasted the digital tablets to books:

It's alive! It moves. [...] Books are not bad, but they cannot achieve what these moving pictures achieve, these interactions.

In this teacher's opinion, the multimedia content provided by the digital tablet opened new ways of interaction.

One teacher discussed different reasons why some children are reluctant to attend their mother tongue sessions but, no matter what the reason might be, a smartphone or a digital tablet can successfully be used as an icebreaker. Another mother tongue teacher reported that possessing a digital tablet would make it possible to increase motivation for mother tongue learning, especially for those pre-schoolers who did not exhibit motivation toward joining the mother tongue training hours.

The use of digital tablets in ECE mother tongue language

This is one of the first articles to be published on mother tongue teachers' use of digital tablets in preschool. It can therefore be argued to be an important work, although empirical material is still limited on the subject. This paper illustrates how, when, and for what mother tongue teachers use digital technologies in preschools. Some conclusions are drawn from the questionnaires and interviews about the changing conceptions of literacy for mother tongue teaching, ethics, social inclusion, and equity. Even if this study is limited to one municipality and not generalizable, we think it is important to highlight this group of marginalised teachers and the possibilities and challenges that digital tablets generate for them and their bilingual pupils. Sweden has historically been a shelter for migrants fleeing from military and religious conflicts and it has strategies and visions about migrant children's up-bringing with real possibilities to be educated (Dutch Refugee Council, 1999). We will here emphasize that mother tongue teaching ought to exceed its traditional goals to include new multimodal technology.



Documentation and language apps with ethical dilemmas

Liu, Toki and Pange (2014) have made a large international research overview on the use of ICT in preschool education, with a focus on China and Greece, ending up with the following viewpoint: “In conclusion, ICT use is of vital significance in the preschool educational process” (2014, p. 1172). As soon as digital tablets were introduced in 2010, the two researchers explored whether or not a tablet was computer viable for early childhood education. Their answer was yes (Couse & Chen, 2010). Other research that has come to the same conclusion (Beschoner & Hutchison, 2013) shows that young children can navigate and independently use a digital tablet. More recently, digital tablets have also been proven to be apt for teaching minority languages in preschool (Petersen, 2015). In this study, mother tongue teachers perceived digital tablets as a convenient tool for mother tongue teaching. Kress (2009) argues that children prefer to position themselves as producers rather than consumers of digital media and here, children and teachers together become didactic designers (Selander, 2009) of multimodal content framed by a mother tongue language. The mother tongue teachers point out the potential of digital devices to produce educational material. This concerns both those languages where the amount of educational material is limited, but also languages where there is material available, but the teacher cannot use it in Swedish preschools due to religious or political standpoints. Some of our respondents mentioned that they don’t want to use material from their country since it can be religiously or politically influenced.

Ethical guidelines are stricter in preschool than in school, yet mother tongue teachers felt forced to use private digital resources to document pupils’ learning; i.e. perform their job. Due to the municipality’s economic restrictions, digital tablets were not available, which bred a digital infrastructure in which private digital devices were purchased for mother tongue teaching. The term “documentation” is mentioned all through the Swedish preschool curriculum (Skolverket, 2011) but these kinds of images, representations, films and photos are a sensitive kind of documentation (SFS, 1998, p. 204) that must not be kept on private devices. We wanted to raise a child’s perspective, where children’s pedagogical documentation could be given the same protection as, for example, researchers offer children at other research sites (Lindgren & Sparrman, 2003). Here lies a dilemma, as each mother tongue teacher has to find a way to document children’s learning, still following ethical guidelines although using private devices. Hällström (2015) highlights that there are a lot of questions on ethics but no answers about adults visualising children in pedagogical documentation photos and video films in preschool. A question is raised on who takes responsibility for all the documentation that is presently produced in Swedish preschools.

A revolutionizing possibility: A national ICT strategy

In the curriculum for Swedish preschool (Skolverket, 2011), ICT is mentioned as an important area to consider, but neither children, nor teachers are obliged to use them. This study shows that mother tongue teachers working in preschool request something to guide and frame their teaching in the digital domain; whether research, policy documents, or curriculum. In the OECD report “[Students, Computers and Learning: Making the Connection](#)” (2015), it is revealed that it is not enough to invest in hardware to benefit possibilities of digital resources. Sweden has proven to be quite developed in areas of digital infrastructure, but usage in practice is not always observed. What is missing, it seems, is a national strategy, which many other countries have or are presently developing. However, the National Agency for Education recently set up a commission from the government to present such strategies for school next year (Utbildningsdepartementet, 2015) and hopefully this will include guidelines that may be applicable for preschool and mother tongue language in preschools. It is not likely that this strategy will present guidelines on hard - or software. Yet guidance needs to be provided: our findings show that mother tongue teachers experience a need to own digital tablets in order to be responsible and in control of the design of their teaching and the documentation of children’s development in their mother tongue. They need to ensure that apps they want to use are installed, likewise that the ones they do not



want to use are not installed. Furthermore, digital devices like tablets with built-in cameras and recording facilities and the fact that young children can write and draw directly on the screen can radically change the nature of mother tongue teaching from a child's perspective.

A possibility for social inclusion and equity

In Sweden, ICT has, at many times, (for example, in the 80s and at the shift of the millennium) highlighted the use of ICT as a question of democracy and equality (Pedersen, 1998; Riis, 2000). We began this article by highlighting the importance for bilingual children's learning and identity to develop their mother tongue at an early age. The opportunity to include mother tongue language in a digital interface is appealing and might even elevate the status of mother tongue activities among children, especially if it can be introduced in the ordinary preschool environment with Swedish-only speaking children. So far, most European languages are presented in apps used in preschools in Sweden, but this might change rapidly due to, among other things, an intense flow of refugees. Children with a mother tongue other than Swedish shall – according to The Education Act – receive the opportunity to develop their mother tongue (Skolverket, 2011), and how could this better be fulfilled than with digital multimodal materials found and downloaded or even *created* by mother tongue teachers and their pupils? Other research within the same area (Blackwell, 2013) presents how difficult it can be for teachers to find quality apps for teaching. This shows how children can create their own video, audio, and photo capabilities with the technology, and puts this didactic design forward as a way to enhance student learning and engagement.

Conclusion

Swedish preschool's curriculum begins by stating that preschools shall "*impart and establish respect for human rights and the fundamental democratic values on which Swedish society is based*" (Skolverket, 2011, p. 3), continuing to state that an ethical attitude should characterise all activities in preschool with keywords such as care, justice and equality. Since the introduction of computers into education many years ago, this aspect of democracy has been used to motivate educators toward digitisation. Today, about four out of five Swedish 2-4-year-olds have access to digital tablets at home (Statens Medieråd, 2015) and a digital gap concerning hardware is still prevalent. But now, those thoughts that can be framed by the notion of *app gap* (c.f. McDowell, Stevenson & Mabbott, 2014; Neumann, 2012), indicating that parents from different socio-economic backgrounds download apps of different quality. The use of tablets in preschool is here motivated by the importance of inviting all children - indifferent of socio economic background - into a digital environment of quality. Such an environment provides apps that encourage children to learn. The environment shall present just and fair ethical and gender views and aligned curriculum statements through which children can assimilate ethical educational experiences (Skolverket, 2011). Research indicates that the use of digital tablets provides an increase in the home-school connection (Blackwell, 2013) and, as technology can be a powerful tool for developing home-preschool relations (NAEYC & Fred Rogers Centre, 2012), hopefully ethical issues will be solved in the near future. Earlier research illustrates how mother tongue teaching includes a struggle for legitimacy in Sweden itself (Ganuza & Hedman, 2015); perhaps the use of digital tablets and quality apps and/or user designed digital materials can help overcome this struggle.



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