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**Making Sense of the Virtual World for Young Children:
*Estonian Pre-School Teachers' Experiences and Perceptions***

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Abstract

The study provides an overview of teacher perceptions regarding young children's internet use and media education in pre-schools. Two focus-group interviews with 24 Estonian pre-school teachers were carried out in order to analyze their experiences and opinions about factors that influence pre-school children's computer and Internet use. Pre-school teachers' perceptions about their own role in shaping children's media literacy were also examined. The results indicate that teachers consider the role of the family on children's computer use to be more significant compared to their own role. Although the teachers started to acknowledge their own role as supervisors and parents' counselors as the interviews progressed, no curriculum-based media literacy shaping is done in the classrooms. Furthermore, rather than developing children's awareness of the media, various new media had been used as "enrichment" and significantly fewer activities that would actually help to shape children's media literacy were mentioned.

Keywords: pre-school teachers, young children, computer use, media literacy, Estonia

Making Sense of the Virtual World for Young Children:

Estonian Pre-School Teachers' Experiences and Perceptions

Researchers (e.g. Livingstone & Bovill 2001, p. vii) have noted that in the last decade we have witnessed a visible change in the media environments and leisure time habits of children (Swanbrow, 2004). Compared to children in the early 1980s, today's young children are spending much less time outdoors or engaged in organized sports, whereas a progressive increase in time spent on the computer has been noted (Swanbrow, 2004). However, as young children are only starting to climb "the ladder of online opportunities" (Hasebrink et al 2009, 87), their main online activities are often connected to playing computer games. For instance, according to the evaluations of Estonian parents, the majority of 5-7 year olds in Estonia (81%) are, on a weekly basis, engaged in playing online computer games, with 23% of them estimated to engage in playing computer games for more than 10 hours per week (Finantsteadlikus ja rahaline kirjaoskus 5-7 aastaste ja 8-9aastaste Eesti laste seas, 2010). The most popular virtual worlds among Estonian children are Lastekas (80 000 users) (www.lastekas.ee) and Mängukoobas (66 000 users) (www.mangukoobas.ee), which are widely regarded as offering a varied gaming environment for the young. Even though several authors have suggested that playing computer games should not be considered a waste of time but a "motivational step on the way of 'approved activities'" (Hasebrink et al 2009, 50), Estonian children have been perceived to be taking rather passive and unimaginative roles in virtual worlds (Rudi, 2009). In other words, despite the fact that Estonian youths are heavy users of new media (Kalmus & Keller & Pruulmann-Vengerfeldt, 2009), the general lack of mediation and guidance (Livingstone & Haddon, 2009) might be one of the reasons why Estonian children have yet to fully grasp the wonders that the online medium offers.

Parental strategies of mediation, however, are dependent on several factors. Although some authors (see Kirwil et al. 2009 for an overview) have suggested that parental strategies of mediation depend largely on the general value orientation of the country, others (Kalmus & Roosalu, in press) refer to the role of welfare state institutions, which, through regulating female labor force participation and the availability of public childcare, have some bearing on the strategies parents are actually able to employ in their child-rearing tasks. As the dual-career family with both parents working full-time is rather typical in Estonia, with 91% of all three- to six-year-olds attending pre-school daily, the role and responsibility of teachers in shaping children's media literacy has become essential (Statistics Estonia, 2009). However,

as the National Curriculum for Pre-school Child Care Institutions (Koolieelse lasteasutuse riiklik õppekava, 2008) does not contain media education as a subject field and, as a result, teachers do not have any training in the area, the question of suitable monitoring strategies and teaching methods is of vital importance.

The aim of this study was to explore how pre-school teachers perceived factors that influence pre-school children's use of the computer and the Internet, as well as their own role in shaping children's media literacy. Two focus-group interviews with 24 Estonian pre-school teachers were carried out in order to analyze their perceptions and experiences regarding the topic.

This paper consists of three parts. In the first part, we provide an overview of the literature related to children's computer use and mediation. The article then moves on to the methodology of the empirical study. In the last part of the article, the results of the study are presented and discussed.

Literature Review

Interdisciplinary theories and concepts form the basis of our article. We have applied theoretical views mainly from the fields of educational sciences, media and communication, and psychology.

The first section of the literature overview presents the discussions around generational differences and important aspects related to children's computer use. Then we move on to discuss aspects related to attitudes toward computer use by pre-school teachers.

Generational differences and mediation

Livingstone and Helsper (2008) claim that, in the present-day media saturated world, "parents seem engaged in a constant battle with their children as they seek to balance the educational and social advantages of media use and the negative effects that some content or mediated contact might have on children's attitudes, behavior, or safety" (p. 1). In this context, the term "mediation" is used to refer to the parental management of the relationship between children and media. However, the term provides an extension to the role of the adult, as it moves beyond simple restrictions parents can implement and includes more conversational and interpretative strategies (e.g. Valkenburg, Krcmar, Peeters, & Marseille, 1999), as well as monitoring activities (Kerr & Stattin, 2000). Although parents have been facing this challenge for some decades, for example, in regulating children's television

viewing (Valkenburg, 2004), their greatest mediational task is now connected with children's computer use.

Compared to the members of the “digital generation” (Papert, 1996), adults tend to struggle much more when adopting practices related to digital technologies. This struggle is most evident in the technology-knowledge gap between the members of the new generation and their parents, which has resulted in the claim that the Internet and computers have provided the young with a position of greater authority and control (Tapscott, 1998; Alch, 2000; Livingstone & Bober, 2005). Furthermore, as the Internet is considered to be a very specific environment in terms of risks, Livingstone & Helsper (2008) claim that the strategies used for mediating the television use of children have proved to be insufficient in terms of the new media. Hence, the suggested changes in the position and role of adults, as well as the need for improved mediational strategies, may start to play an important role in shaping the attitude of parents and teachers toward the computer use of young children.

Computer use among pre-school children

In recent years, the hype around the new, technology-savvy generation has not only increased the number of studies of Internet use and the online practices of adolescents or tweens, but has also resulted in discussions of the role of ICTs in the lives of pre-school children (Edwards-Groves & Langley, 2009; Dhingra, Sharma, & Kour, 2009; Zevenbergen & Logan, 2008; Thorn, 2008). Furthermore, pre-school children are considered to be the newest group of Internet users (Feller, 2005). The findings of Olle Findhal (2009) regarding the situation in Sweden nicely illustrate the fundamental changes in the Internet usage of pre-schoolers. Compared to the year 2002, where the critical age marking when half of the age group had started to use the Internet was 10 years, the critical age in the year 2009 was close to four years (Findhal, 2009).

Even though the time pre-schoolers spend using the computer is quite restricted (Dhingra et al., 2009; Rideout, Vandewater, & Wartella, 2003), the results of the parent survey carried out by the World Internet Institute indicate that the time spent online increases significantly as children grow older (Findhal, 2009). Although in some cases it is reported that two- to five-year-olds usually use the Internet under the supervision of an adult (Feller, 2005; Findhal, 2009), generally a significant number of four- to six-year-old children are capable of using the computer without any parental assistance (Rideout et al., 2003). Furthermore, studies (Zevenbergen & Logan 2008; Rideout et al., 2003) indicate that pre-

school children have developed a high number of skills through their use of computers. The computer skills the pre-schoolers possess offer them a number of opportunities in their use of new media. For example, Zevenbergen and Logan (2008) claim that the majority of children use computers to play educational and non-educational games, while others (cf. Dhingra et al., 2009; Downes, 2002) suggest that computers are used for self-expression, for instance, drawing and painting, as well as for learning numbers, letters and rhymes online (Feller, 2005).

The influence of the home on computer-use

Several studies report that pre-school children have extensive computer use in out-of-school environments (Edwards-Groves & Langley, 2009; Dhingra et al., 2009). As a great number of children have access to the computer and the Internet in their home settings, Stephen, McPake, Plowman and Berch-Heyman (2008) note that “the family habitus (practices and culture)” has an impact on the child’s engagement with the ICT (p. 24). Furthermore, Rideout and Hamel (2006) claim that “parents’ beliefs about media — and their own media habits — are strongly related to how much time their children spend with media, the patterns of their children’s use, and the types of content their children are exposed to.” (p. 5)

However, parents are not always aware of their role in supporting their child’s learning or in shaping the computer-use habits of the child. For example, parents tend to make use of media content as “a chance to get their chores done, quiet their kids down, or just have some 'me' time, knowing that their kids are 'safe' — not playing outside, and less likely to be making trouble around the house” (Rideout & Hamel, 2006, p. 32). Thus, although researchers (e.g. Magid, 2003) have warned against making use of computers as digital babysitters, many parents still admit to this habit (He, Irwin, Sangster Bouch, Tucher, & Pollett, 2005).

Even though pre-schoolers name parents as the main source of information when it comes to learning how to use the ICT (Stephen et al., 2008, p. 25), parents themselves tend to believe that “children’s competences with technology were mainly the result of being self-taught” (Plowman, McPake, & Stephen, 2008, p.13). Researchers have also noted the significant role of older siblings in acquainting younger ones with new technology (Plowman et al., 2008, p. 8). The presence of older siblings may result in competition for resources, and older siblings have also been found to be likely to introduce activities that are not favoured by

parents (e.g. Plowman et al., 2008). In comparison with the highly acknowledged role of family members in shaping the computer use of a child, the findings of Stephen et al (2008) indicate that pre-school is not perceived as a source of learning through technology, either by parents or children.

Aspects related to the attitudes and computer use of pre-school teachers

Lee Shulman (1986) suggests that the knowledge of teachers' "intellectual biography – that set of understandings, conceptions, and orientations that constitutes the source of their comprehension of the subjects they teach" (p. 8) is crucial for assessing their content knowledge. However, according to Flores-Koulish (2005), in the case of including media and new media literacy in their teaching, teachers mainly have to rely on their own knowledge, which usually "comes from daily exposure and social interaction related to media culture" (p. 6). According to Flores-Koulish (2005), not only is the media consumption of pre-service teachers "somewhat less than the average of most young people" (p. 12), but future teachers also currently tend to "consume media slightly less than during their childhood" (p. 13).

Furthermore, a phenomenon known as "apprenticeship of observation", first coined by Dan Lortie (1975), is also suggested (Mayer, 1999) to have an impact on the teaching methods and pedagogical beliefs of young teachers. According to this viewpoint, young teachers usually teach in the way they themselves were taught. Hence, by bringing in "their implicit institutional biographies" (Britzman, 1991, p. 443, quoted from Mayer, 1999) prospective teachers "may fail to realize that the aspects of teaching which they perceived as students represented only a partial view of the teacher's job" (Borg, 2004, p. 274). Hence, generational differences could also be one of the reasons why there is still little use of new media technologies in pre-schools (Edwards-Groves & Langley, 2009; Marsh et al., 2005). Probably due to the above-mentioned phenomenon, many pre-school teachers also tend to feel that computers restrict rather than enhance the social development of children and have therefore decided not to implement digital devices in their own teaching practices (Bayhan et al., 2002). Furthermore, as noted by Marinović et al. (2001), pre-school teachers in Croatia listed considerably more drawbacks, e.g. the negative impact on social development, harmful health impacts, insufficient physical activity, and the negative impact on emotional development, compared to the possible benefits from computer use in pre-schools.

Besides the fact that the "intellectual biography" of pre-school teachers does not consist of the usage of digital devices and thus excludes the technology from their own

teaching experience, studies also report on ICT in pre-school settings being used as “a benign addition” (Cuban, 2001, p. 67). In other words, although ICTs are being used in pre-school settings, the teachers view the devices as a “useful supplement to existing resources” (Plowman & Stephen, 2003, p. 149) and not as devices which could lead to new concepts of play and learning (cf. Laffey & Espinosa, 2003).

Hence, it may be concluded that teachers’ own media consumption, computer skills and pedagogical beliefs all form an integral part of making use of new media in pre-school settings.

Method and Sample

In November 2009, two focus group interviews were carried out with teachers (N=24) who educate children younger than eight years old. The interviews focused on clarifying teachers’ perceptions of computer and Internet use by young children and their perceptions of the role of the teacher. Teachers’ understandings and opinions of the topic mainly rely upon their observations in pre-school groups, as well as on everyday conversations with parents and children. Furthermore, Estonian pre-school teachers have an obligation to carry out formal and pre-determined questionnaire-based development conversations with parents at least once an academic year. As one of the aims of these development conversations is to “explain the parents’ viewpoints and expectations with respect to the development of the child” (Koolieelse lasteasutuse riiklik õppekava, 2008), the teachers are relatively well informed on parents’ perceptions and attitudes regarding children’s favorite activities, including the computer and Internet use of the child.

In compiling our sample, we aimed to select a broad range of participants and thus decided to cover diverse groups (different pre-school educational establishments, varying in region, size and form of ownership). A full list of Estonian pre-schools was used to compile the sample. Random sampling among groups of pre-schools was used to make the final selection, and every pre-school selected chose a teacher to participate in the focus-group.

The final sample comprised 24 female teachers whose ages ranged from 22 to 50 years; more than half of the interviewees were older than 35 years. Almost half of the teachers had been working in pre-schools for more than 20 years; slightly fewer teachers had been working for less than five years. Less than a quarter of the teachers had been working in pre-school for six to 19 years. As the majority of pre-school teachers in Estonia are female

(99.7%), our sample provided a proportionally accurate cross-section of teachers working in Estonian pre-schools (Estonian Ministry of Education and Research, 2010).

We considered the focus-group method to be the best suited in respect to the aims of the present study, as it helped to capture the opinions and experiences of pre-school teachers with very different backgrounds in Estonia. Furthermore, as the discussed topics were relatively new to Estonian pre-school teachers, the focus-group method supported in-group content creation and encouraged the participants to point out examples of similar or even antagonistic cases in their own practice. In addition, the focus group method allowed for a variety of additional topics to be raised by group members and, hence, enriched the data.

The interview style for both of the two-hour focus groups was based on a qualitative interviewing technique, which involved a flexible outline of topics and questions (Patton, 2002). A prepared interview schedule with open-ended questions was used to help guide the interviews. The procedures of the “grounded theory approach”, as described by Strauss and Corbin (1998), were used to analyze the data.

After transcribing the interviews, the verbatim transcripts were read to get an overall sense of the data. The format was organized around categories that arose from the data. The data interpretation was cyclical, starting with line-by-line coding. In coding, we considered only those utterances that concerned computer and Internet usage of children and the adults' role as mediators.

During the open coding, the data was broken down into separate ideas and events. In the axial coding, conceptually similar phenomena were grouped to form categories and subcategories. After that, the relationships among categories were articulated within and across informants. During the selective coding, the core categories were identified. Teachers' perceptions, examples and events were used in the data analysis. A theoretical literature overview was used to explain the results.

Results

Children's computer and Internet use

Our first aim was to explore how pre-school teachers perceive factors that influence pre-school children's computer and Internet use. The teachers generally indicated that at the age of three, children start showing interest in computers, but the interest is still not echoed in their activities and, thus, the teachers do not see the need to raise this topic. The teachers

believed five- to seven-year-old children to be more receptive toward new media, as the teachers had witnessed the effects of Internet and computer game usage in the games and communication of the children in the pre-schools. Nevertheless, according to the observations of the teachers, children in that age group had very different experiences with computers. There were children who showed no interest in computers but also children whom teachers characterized as being addicted to computers. However, it has to be noted that, compared to the scientific definition of the word “addiction” (Young, 1996), the teachers both understood as well as used the word “addiction” in a different context.

T1: I had a boy in one group who was a heavy computer user. He got very upset if things did not go as fast as he wanted, especially with computer games. Sometimes, when the irritation was very strong, he just collapsed. If there was no computer around, he had that “psp” toy with him. His psychiatrist suggested limiting computer and psp use and the boy has become much calmer now.

T2: Conversations with parents indicate clearly whose children spend too much time with the computer. Those children are anxious and they have concentration difficulties. Parents are worried because their children don’t want to come to kindergarten because they can’t play computer games here. It is like an addiction.

According to the perceptions of the teachers, the children tended to form their overall attitudes and interests regarding computers within groups, and thus the values and opinions regarding the topic differed depending on the peer culture.

T1: I have noticed that the situation varies in different classes. The children who went to school 18 months ago were more interested in computers. ...But the present class wants to play and the children are not interested in computers ...

In other words, the teachers noticed that the more the children played creative, board or building games, the less interest they had in computers. Furthermore, according to the perceptions of teachers, other factors, for instance, the leaders’ play skills etc., which however are not investigated in the present study, also helped to form the child’s interest in computers.

Factors influencing children’s computer use

When speaking of children's computer and Internet use, the teachers focused on two different roles a computer had in the home setting, both of which might have an impact on the computer and Internet use of a child.

According to the perceptions of teachers in our sample, there are parents who make use of a computer as a babysitter in order to keep a child occupied while grown-ups are working or relaxing.

T1: ... the computer fills up the time and you can be on your own.

T2: ... this [the computer] is the most convenient method of babysitting.

Teachers suggested that, in some families, the computer was also used in order to motivate or reward a child.

T1: Two children in my class can use a computer as a reward. One has tasks given by a speech therapist and he knows that after completing these exercises he can use the computer for 20 minutes. And it is a great motivator for him.

T2: ...There is a habit of making effort.

T1: This is positive.

These kinds of parental strategies were viewed in a favorable light, as teachers believed this kind of computer usage to be connected with the acknowledged mediational role of a parent who has set up concrete rules for computer usage.

Thus, besides the notable peer norms that helped to shape the general attitude of the class toward computers, the teachers believed that the heavy workload of parents could sometimes help to explain why some children tended to use the computer more frequently than others. Furthermore, making use of a parental strategy according to which computer use is a reward may also have positive effects on the general computer use of a child.

Role and impact of family on the child's computer use

The teachers in our sample brought up two aspects: the role of older siblings and parents, both of whom they believed to have an impact on the general computer use habits of the child.

The teachers considered the role of older siblings to be rather significant in terms of young children's access to computers, as well as in discovering their potential. For instance, the teachers noted that, although the rules regarding priority of computer use often favored older siblings, the younger ones were eager to stay up late in order to wait for their turn. According to the teachers, older siblings were also the reason why younger children encountered games and online environments which were not suitable for their age.

T1: ... older children use the computer when they can and younger children can use it when the older ones are tired of it. Then, in pre-school, these children are tired and bad-tempered.

T2: In the class, I can see that the child is nervous. And it is because the previous night his older brother had shown him a frightening game with guns.

Parents' influence on children's computer and Internet use, however, was perceived to be much more diverse. Five different sub-categories – the example set by the parents, admiration, ignorance, helplessness and awareness – were distinguished in the perceptions of teachers. The latter category is related to separate sub-categories of “reward” and “motivation”, both of which were analyzed in the previous section.

The personal example set by parents was often mentioned as an important aspect in shaping the media literacy of the child. First of all, parents were perceived to be the introducers of different media to the child. For instance, it was suggested that the example set by the parents in terms of computer use also helped to form the pattern of usage for a pre-school child.

T1: Children see their parents on the computer far too often; dad is always on the computer.

Many teachers in our sample noted that parents admired and praised children who were able to use a computer and surf on the Internet without the assistance of adults. This kind of appreciation was considered to be rather dangerous. Mainly the teachers feared that the majority of those approving parents were not able or willing to control computer use, which might lead to possible negative consequences later on.

T1: There is a danger when parents acknowledge the child's achievements on the Internet. Parents' appreciation is too great. That is a danger.

T2: Parents admire the child too much and later are not able to control the situation.

Furthermore, the teachers in our sample blamed the parents for being the motivating force whose enthusiasm had helped to increase the time children spent on the computer, which decreased their opportunities for face-to-face social relations.

T1: Social development is more important; the child should communicate..., but parents say: "you can't imagine what s/he can do on the computer" and are proud.

The teachers also mentioned problems they claimed to be caused by the lack of awareness and ignorance of parents. Mainly it was suggested that pre-school children's parents were not sufficiently concerned about safe computer and Internet use. For instance, the teachers believed that many parents had not set restrictions on computer use or had not prohibited access to unsuitable materials, such as films and violent or pornographic web pages.

T1: Parents consider their children to be older than they actually are. They allow them to watch things that are not proper for their age.

T2: And they believe that the child understands.

T3. I rather imagine parents don't think about it.

In other words, the pre-school teachers sensed that parents were quite helpless, especially as far as limits and rules for computers were concerned. It was even suggested that for some parents, taking a child to pre-school seemed to be looked upon as the only chance to get the child away from the computer.

T1: As a matter of fact, some parents see this [having a child in pre-school] as reducing computer use, because they have allowed their young children to access the Internet and other places and now all of a sudden the children will not obey, and parents see pre-schools as a way out... the child is sent to the pre-school in order to avoid the child spending the whole day on the Internet, and instead spend time with his/her friends.

All in all, the teachers claimed that parents should take the role of balancer by regulating time on the computer and suitable media content, as well as taking time to explain the media messages to their children. The above-mentioned aspects were considered the most important, as the teachers in our sample felt that family members had a greater mediational role in comparison with the role of pre-school teachers. Furthermore, Estonian children do not have that much contact with the new media in pre-schools, and it is important to note that the teachers did not consider themselves to be role models in children's computer and Internet use.

Teachers' vision of their role in shaping children's media literacy

Our analysis demonstrated that clear changes took place in the teachers' awareness during the time of the interviews. At the beginning of the interviews, the teachers regarded parents as the child's only supervisors and educators regarding media content, and fully withdrew from their own role as supervisors. They supported their argument by claiming that, compared to the variety of media accessible to a child in the home environment; the usage of media in the pre-school was rather limited. Although some of the teachers in our sample noted that maintaining pre-schools as computer-free 'oases' would not improve the media competence of children, others stated that "computers are not suitable as a part of the daily life of young children". Only later, after increasing their knowledge of the issue, did teachers realize the importance of their own role as supervisors and start to acknowledge their significance in shaping children's media literacy.

The teachers admitted that, as they were involved with children in pre-schools on a daily basis, they should act as supervisors who were also responsible for shaping the media literacy of children.

T1: The parent is responsible; the teacher guides.

T2: The fact is that most of the time the child is in the pre-school.

Furthermore, the teachers acknowledged, especially during panel discussions with parents, that there was a need for them to mentor parents. The teachers admitted that during the panel discussions the parents often expressed their questions and concerns and thus, in their role as mentors, teachers should be responsible for a variety of tasks. For instance,

teachers perceived it to be their task to suggest educational and age appropriate computer games, web pages or informative reading materials to the parents, as well as educating the parents about suitable time limits or about the possible media impact on the child. The need for similar rules and requirements in both pre-school and at home was also emphasized by the teachers.

As media education is not part of the curriculum of Estonian pre-schools and teachers have had no special training, we were interested in finding out what kind of monitoring strategies and teaching methods the pre-school teachers found appropriate to use.

Pre-school teachers' understanding of media education

The opinions expressed during the focus group interviews suggest that pre-school teachers in Estonia see technical resources and the content of media as “enrichment”, supporting and illustrating other subjects, such as language and speech or natural science, none of which, however, shape children’s awareness of media.

T1: ...We have no chance to go see how bread is made. We watched it on a DVD. In pre-school, one can make choices about what and how long to watch.

T2: We watched a show about the life of the black stork on a web camera.

T3: ...letters are taught on the computer keyboard.

In some cases, teachers in our sample also incorporated media texts for current events (looking at weather pages) and made use of a videotape in order to document student performance (making a video of a hiking trip). Significantly fewer activities that shape skills of understanding, creating and analyzing media were mentioned.

However, as the interviews progressed the teachers came to the understanding that media education in pre-school is not only about using the computer and screening educational films. For instance, the importance of adult supervision of media use, as well as the need to provide explanations about content, was recognized.

T1: This is still a part of our life and children need education in every field. It happens at home anyway and we can't ignore that.

T2: And if it still raises problems, then one has to talk about it and children need to be taught regarding this theme.

Thus, eventually, the teachers started to emphasize the need to move beyond the idea of seeing media as mere “enrichment” in the classroom and to concentrate more on discussing, analyzing and explaining media messages. In other words, teachers started to name real aspects leading to media literacy in children.

T1: ... to prevent the negative impact, we can help with our actions. That is the theme of the future.

T2: The child should learn to select media for him/herself.

T3: It's not enough to say that a program is bad and s/he shouldn't watch it.

Several important aspects which should be considered in improving pre-school teacher training curricula were suggested. For instance, the teachers emphasized the need for courses on media education, as well as expressing the need to enhance their media competence and improve their technical skills in order to be able to make use of various technologies. The latter suggestion is closely connected to the biggest concerns that older teachers in particular have about teaching media.

Discussion

According to Sutherland et al. (2000), perceptions of the computer's potential depend on the domestic environment. Furthermore, Sonia Livingstone (2007) has suggested that if parents themselves are computer-oriented their children may also start to follow their example. The focus-group interviews with Estonian pre-school teachers indicated that the role of the family in general, but parents and older siblings in particular, was considered to be the greatest influence in shaping the computer use of young children. For instance, similar to the findings of Downes (2002), the experiences of teachers in our sample led them to believe that older siblings had priority in terms of computer use. Nevertheless, they perceived that a young child's interest in computers was much greater when there were older siblings compared to when the child had no siblings.

Other authors (Sutherland et al., 2000; He et al., 2005) have noted that parents often use the computer as a babysitter in order to keep the child occupied. Teachers in our sample also noted that Estonian parents of pre-schoolers want their children to be engaged in online activities but the parents cannot keep an eye on them. Furthermore, conversations with

parents led the teachers to believe that parents often used computers in order to reward or motivate their children. Although the teachers gave positive evaluations to both of the above-mentioned parental trends, neither of the strategies was actually considered to be educational by the teachers and both were even referred to as “misuses” of media (Hobbs, 1997). The opinions expressed by the teachers, however, reflected their recognition that using a computer was a very attractive activity for the child and thus it might serve as a meaningful reward after having completed difficult tasks (doing homework, cleaning one’s toys, washing dishes, etc) demanded by the parents. However, as noted by Hobbs (2006), in the case of using videos as rewards in the classroom, the teachers in our sample did not seem to understand the indirect message when approving of this kind of parental strategy: using the computer could be the best thing grown-ups can offer.

A more sceptical attitude was expressed by the teachers when describing the enthusiasm of parents related to the computer competencies of their children. The teachers feared that this genuinely positive attitude the parents shared, which has also been noted by several other authors (Marsh et al., 2005; Rideout et al., 2003), would later be followed by general neglect and carelessness about the possible negative impacts and risks involved in computer use. The results of Flash Eurobarometer 248 (2008), according to which Estonian parents tend to be much less concerned about the online activities of their children compared to parents from other European countries, provides scientific justification for the scepticism of teachers. Although the scepticism of teachers was justified, their opinions also illustrated their own overall lack of enthusiasm and hesitation about incorporating digital technologies in their daily teaching practices.

Furthermore, despite the fact that the teachers perceived parents to be quite helpless and careless in mediating their child’s media consumption and computer use, the parents’ role was considered to be far more significant compared to their own role as children’s supervisors and mentors. Hence, it can be stated that the opinions of the teachers in our sample echoed the results of Flores-Koulish (2005), who noted that pre-school teachers “emphasized parents’ responsibility so passionately that it would follow that they feel media literacy in schools should be irrelevant” (p. 24). On the one hand, as daily home computer use is routine for many children (Findahl, 2009), such strong expectations regarding the parental mediational role were justified. Furthermore, when stressing parental responsibilities, the teachers might have been referring to a principle in Estonian pre-school education which emphasizes the importance of co-operation between the pre-school and home (Koolieelse lasteasutuse riiklik õppekava, 2008). On the other hand, in minimizing their own role, pre-

school teachers may have (un)consciously tried to justify the general neglect of new media education in Estonian pre-schools. Compared to a number of countries, e.g. Finland, Australia, United States, etc., which conduct special media education training programs for pre-school teachers, meaningful and systematic media education does not exist in Estonian pre-schools. Hence, supervising strategies that are seen as adults' views and practices in guiding media consumption and media literacy development are not fully acknowledged by Estonian teachers. However, Yelland (2005), in her overview of previous research on the use of computers in early childhood education, concludes that "the role of the teacher in the learning process is critical" (p. 224). Hence, we considered it to be crucial to find out what roles the teachers in our sample actually perceived as their tasks.

Compared to Labbo (2000), who suggested that in order to shape children's digital literacy skills pre-school teachers should start to fulfil the roles of models, mentors and managers the teachers in our sample considered the teacher's role to have two main functions - supervisors for the children and mentors for the parents. As the former task can be associated with the overall role of adults, the teachers may have emphasized the latter role because of the peculiarities in Estonian pre-schools: according to the relevant law, the pre-school teacher has the obligation to support and counsel the family (Koolieelse lasteasutuse riiklik õppekava, 2008). In other words, the Pre-school Child Care Institutions Act (1999) suggests that both home and pre-school should share responsibility in supporting the growth and development of the child. In order to guarantee the two-way flow of communication between the pre-school and home, development conversations with parents are carried out regularly. Hence, the legislative language might also have had an impact on our results. As with the findings of Floures-Koluish (2005), teachers in our sample also regarded preventive and informative work, for instance about dangers found on the Internet, to be part of media education and thereby part of their role.

Still, considering the fact that media literacy is understood as the ability to use, analyze, create and impart the media message in different forms and contexts (Livingstone, 2003; Buckingham, Banaji, Carr, Cranmer, & Willett, 2005) and, hence, media education in pre-school should actually include a variety of tasks, for example, interpreting media messages with children, do-it-yourself tasks, expressing oneself through the means of media, and learning about technical means (Mediakasvatus varhaiskasvatuksessa, 2008), the teachers in our sample at first described only one narrow facet of media education. Although some of them had made use of ICTs in their teaching, the focus group interviews indicated that the teachers in our sample mainly made use of the "content delivery approach", that is, they

“refer to specific media ‘texts’ as a strategy for conveying subject matter, information, illustration and idea” (Hobbs, 1997, p. 13). Hence, it can be claimed that teachers generally used technology as a “benign addition” (Cuban, 2001, p. 67) which did not help to shape either media literacy or the digital competence of the child.

Our findings clearly point out the need to include media education in pre-school teacher training courses. Pre-school teachers in our sample were not only hesitant about their own computer skills and related knowledge, but their answers also demonstrated a relative lack of awareness of the importance of media literacy and digital literacy skills in general. Even though various programs (e.g. Tiger Leap) have been instituted to establish Internet connection in every elementary school, high school and university in Estonia, as well as to develop the technology skills of the teachers in these institutions (Partners in Learning Progress, 2007), these initiatives have not yet focused on pre-school settings. Thus, the relative lack of ICT in Estonian pre-schools and the uneven computer knowledge of teachers may have been the reasons why the teachers were not accustomed to and were hesitant about making use of the few technologies their classrooms offered. Special pre-school teacher training courses which focus on making use of ICTs to fulfill communicative and creative tasks in the classroom, which started in June 2010 (Koolitus Lasteaegade õpetajatele, 2010), will hopefully help to improve both the skills and the self-confidence of teachers.

Considering these new courses, a follow-up study should be carried out in a few years to see if and how pre-school teacher perceptions have changed. In addition, future research should also consider examining in greater detail the expectations parents have about the role of teachers in shaping the media literacy of the child.

Finally, there are two notable limitations to this research. The focus-group method allowed us to study the self-reported perceptions of teachers, but we were unable to evaluate the actual practices of teachers and the actual use of new technologies by young children. Hence, we acknowledge that the discourse provided by the teachers might not match the lived experience. Furthermore, our relatively small and homogeneous sample did not allow us to differentiate between teachers based on their socio-demographic background. In addition, although we acknowledge that neither children nor parents should be seen as homogeneous, no socio-demographic information was provided by the teachers to make the distinctions between these groups.

Despite these limitations, the study has contributed to the existing research by combining the pre-school teachers’ perceptions regarding aspects influencing young children’s computer and Internet use with their reflections on the teacher’s role in shaping the

media literacy of children. This study on teachers' perceptions is also important in that it has been suggested that teachers' perceptions also guide their classroom practices (Hollins. 1999, p. 12-13). The grounded theory approach has helped us to capture the points in the interviews where the participants started to negotiate and focus on the meaning and content of the terms they were asked to elaborate upon, thus creating new visions and understandings of their own role in shaping the media literacy of children. The approach also helped to highlight the importance of the teachers' perception change when discussing their own role in educating children about the possible uses of new media, as well as broadening their own pedagogical perspectives.

Conclusion

This study has provided the first overview of teacher perceptions regarding young children's Internet use and media education in Estonian pre-schools. Pre-school teachers' experiences and opinions of factors that influence pre-school children's computer and Internet use, as well as their role in shaping children's media literacy, were examined.

The focus-group interviews with pre-school teachers indicated that teachers considered the role of the family in children's computer use to be more significant than their own role. According to the perceptions of teachers, different processes in family dynamics (e.g. the impact of older siblings, and the personal example set by parents) and family values (e.g. using the computer as a motivator, as a reward or a means of babysitting, the ignorance and helplessness of parents, and parents' admiration of the child's computer skills) tended to increase children's use of the computer and the Internet.

The teachers considered the mediational role of parents to be most influential in terms of media literacy development, as they not only regulate children's time on the computer and suitable media content, but also interpret and explain these media messages. However, the importance of their own role in shaping the media literacy of children was acknowledged only as the interviews progressed. The teachers became aware of two roles they should start to fulfill: the teacher as children's supervisor and the teacher as parents' mentor. The latter role includes a variety of tasks, for example, suggesting educational and age appropriate computer games, web pages or informative reading materials to parents, educating parents about suitable time limits or about the possible media impact on the child, and suggesting similar rules and requirements in both the pre-school and at home. Preventive and informative work was also seen as part of media education.

Although teachers agreed to share responsibility in supervising children's computer and Internet use with families and parents, no curriculum-based media literacy shaping was being done in the classrooms. Rather than developing children's awareness of the media, teachers had been making use of technical resources and various media content as "enrichment", in order to support and illustrate other subjects, e.g. language or natural science activities. However, significantly fewer activities that would actually help to shape children's media literacy were mentioned by the teachers. Nevertheless, even though the teachers started by describing only one narrow facet of media education; they later acknowledged the need to move beyond the idea of using media as "enrichment" into discussing, analyzing and interpreting media messages with children. Thus, by the end of the focus-group interviews, the teachers were able to distinguish three aspects of media education: making use of technical equipment (but not teaching how to use it), introducing and analyzing media content, and doing preventive or informative work.

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