VERY YOUNG CHILDREN’S DIGITAL LITERACY
Engagement, Practices, Learning, and Home–School–Community Knowledge Exchange in Lisbon, Portugal

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Children, Media, and Social Participation
Despite the continued existence of digital divides, most children live nowadays within rich digital environments, even those from underprivileged families (Chaudron, 2016), enabling them to engage with the internet and digital technologies from an increasingly early age, often starting when they are infants (Kotilainen & Suoninen, 2013) and rapidly increasing their use and practices over the following years (Danby, Fleer, Davidson, & Hatzigianni, 2018; Hooft Graaff, 2018; Marsh, 2014; Palaiologou, 2016; Sefton-Green, Marsh, Erstad, & Flewitt, 2016). Children gradually become more independent in their use, consumption, production, and sharing of media content within digital environments, having a greater opportunity to participate as they grow older (Marsh, 2014). These activities do not mean, however, that children are increasing their social participation. As Livingstone, Kardefelt Winther, Kanchev, Cabello, Claro, Burton, and Phyfer (2019, p. 6) purport, even if children “are already enjoying some online opportunities in sizeable proportions”, they do not climb the “ladder of participation” in that “most children do not reach the point where they commonly undertake many of the civic, informational and creative activities online that are heralded as the opportunities of the digital age”.

This chapter will demonstrate that a community-based action research project aimed to develop very young children’s digital literacy competencies was successful when developed through a model proposed by Sefton-Green et al. (2016), enriched with in-service teacher training, and by employing a deep characterisation of the community in order to model and adapt the project to specific contexts.

Very young children’s online practices have been largely ignored by policy-makers in many countries (Holloway, Green, & Livingstone, 2013). Only 12% of approximately 1,200 research projects identified included children under the age of seven, while only 20% included the perspectives of teachers and 13% of parents (O’Neill & Staksrud, 2014). The scenario has considerably changed in recent years, namely through relevant projects such as EU Kids Online and Global Kids Online. However, data on young children’s digital use and practices
does not tell us what such engagement means in terms of the child’s learning especially their developing literacy . . . their understanding of the world, their understanding of social relationships and indeed what implications such use might have for their education as a whole.

(Sefton-Green et al., 2016, p. 9)

Thus, it is a key task for educators and researchers “to understand how young learners make sense of multimodal texts in digital environments, and how they impose order on the juxtaposition of different modes” (idem, p. 20). Young children “learn watching others, especially parents and other family members” (Chaudron, 2015, p. 14). There is a need to articulate formal and non-formal learning contexts, i.e., to embed core skills in the school curriculum, such as flexibility, innovation, creativity, and problem solving, as well as helping children’s families evolve from family literacy to family digital literacy (Marsh, Hannon, Lewis & Ritchie, 2015). Digital literacy is “a social practice that involves reading, writing and multimodal meaning-making through the use of a range of digital technologies” as well as traditional technologies that “can involve accessing, using and analysing texts [in a broader sense: text, sound, moving and still image], in addition to their production and dissemination”, which implies “the acquisition of skills, including traditional skills related to alphabetic print, but also skills related to accessing and using digital technologies” (Sefton-Green et al., 2016, p. 15), such as “create, work, share, socialise, investigate, play, work, communicate and learn” (Meyers, Erickson, & Small, 2013, p. 356).

Regarding digital literacy and children, the leading themes are “parental mediation of children’s digital literacy practices in homes, children’s media engagement and literacy learning in homes, and home–school knowledge exchange of children’s digital literacy practices” (Kumpulainen & Gillen, 2017, p. 3). This chapter focuses on the third theme, i.e., on the interconnected and interrelated connections between home and school, taking into consideration the non-formal places of action, such as where children act daily and where the home is established. This context can blur the boundaries of the different geographies (idem, 2017).

Recognising the need to develop children’s digital literacy through the implementation of multidimensional projects that aim to create ‘digital citizens’ who can fully exert their “digital participation in society” (Ribble, 2011), the community project ‘Digital Citizenship Education for Democratic Participation’ (2016–2018) was developed in Portugal between 2015 and 2018. The project aimed to foster the social participation of children (aged 3–8 years) through their media use, and to involve teachers, parents, and the local community of Caneças, a district in Portugal’s capital of Lisbon.

**A Project Adapted to the Specific Context**

Caneças is a small community of 12,000 inhabitants, situated within the county of Odivelas in the northern part of Lisbon. The neighbourhood has the second highest population density in the country, with around half (51%) having only completed basic education (to grade nine) and a quarter having only completed the first cycle of schooling (four years). The school-age population of Caneças is 11% (although the total youth population is 15%), and 16% of the total population are immigrants.

The research project aimed to answer the following question: to what extent can a local (and replicable) project, teachers, and out-of-school contexts including families, empower pre-school and primary-school-aged children to become active and effective citizens in the digital era? The main hypothesis was that a concerted approach within the family, school, and out-of-school contexts can empower pre-school and primary-school children to exercise an active and effective citizenship in the digital era. The project was organised in five stages: i) production and
validation of data collection instruments (March–December 2015); ii) in-service teacher training course (January–February 2016); iii) characterising the context through data collection from parents, children, and the community (April–June 2016); iv) sharing results with participants and setting up a digital literacy intervention plan (September 2016); v) longitudinal study with teachers who volunteered after the training course (September 2016–February 2018).

The methodological approach of this exploratory project was founded on action research. The study has undergone frequent improvements as the authors followed a research model proposed by Sefton-Green et al. (2016), which was inspired by authors such as Carrington (2013), Colvert (2015), and Green (1988). According to the model, there are three interrelated areas that form the basis of how the individual produces and receives media messages, whether in formal settings or in an informal context:

1. Operational – capacities and skills needed to read, write, and interpret messages from different media and its various platforms;
2. Critical – interaction with texts and digital products, seeking to answer questions related to power and agency, representation and voice, authenticity and veracity;
3. Cultural – concerns interpretations and actions that develop according to its involvement in digital literacy practices in specific social and cultural contexts.

When a citizen wants, for example, to communicate a message, he/she draws on these three areas and makes decisions within the context of the following four levels: design (if the message is multimodal or not); production (creation of the text); distribution (which are the channels); and implementation (imagine how the receivers will interpret the message, depending on the background). All these processes take place within the frameworks that influence the digital literacy practices of children, including: micro (with the child), meso (formal and informal learning contexts, family, friends, and the local community), and macro (the nation state). Following a model keeps balance and consistency, but the use of technology is much more eclectic, as it is multidimensional and changing rapidly (Carrington, 2013, quoted by Sefton-Green et al., 2016). Without disregarding balance and consistency, the research design was tailored to the local context, i.e., the project was very dynamic and subject to frequent rebalancing and reconfigurations in order to overcome tensions, incompatibilities, and to maintain the participants’ active involvement.

The context was based on four data collection processes:

1. A questionnaire sent to the 25 teachers that attended the training (10 pre-school and 15 primary-school teachers), which focussed on digital media uses and practices, the perception of the pupils’ media use, and their perceptions on learning potential, risks, and opportunities;
2. A questionnaire sent to 38 parents (some questions were adapted from Mathen, Fastrez, & De Smedt, 2015), which focussed on digital media uses and practices, perception of children’s media use, perceptions on risks and opportunities, on learning, as well as on parental mediation;
3. An interview script (adapted from Chaudron, 2015) answered by 38 children (22 aged 4–6 years and 16 aged 7–10 years) which focussed on media use and practices, skills, parental mediation, and family rules;
4. Field notes. The data was processed using the Statistical Package for Social Sciences (quantitative data) and Atlas.ti (qualitative data).

Results from 1), 2) and 3) allowed us to characterise this multidimensional context, a crucial task in order to adapt the intervention model accordingly. Regarding media use, most teachers (22 out of 24) and parents (30 of the 38) used the internet daily, while all children consumed the
same amount of television (36 of the 38 every day) and YouTube (although with different weekly frequency). However, this was not the case with digital games (3 of the 38 children did not play them) even though five of them did not have access to the internet at home. These reported practices were in line with the observation by Edwards, Nolan, Henderson, Mantilla, Plowman, and Skouteris (2016) that children consider three categories related to their everyday life and the internet: “1. Family: Use of the internet by and for family members/2. Information: To access and/or produce information/3. Entertainment: Enjoy movies/games for fun and/or relaxation” (p. 6).

The research also observed that parents used the internet via their smartphone the most (28 out of 38), followed by the children (18 of the 38) and the teachers (8 of the 24). Among the adults, the most used means to access the internet was through their personal laptops. Among the children, tablet devices were the most popular (33 of the 38), with 17 also using the internet through console devices. There was also clear evidence that the time children spent using digital equipment increased on the weekend. If, from Monday to Friday, three children did not use any digital device and 19 only used them up to an hour per day, they all used them on the weekend, with 12 using them up to one hour, 10 (instead of four during the week) using them for two to four hours and seven (instead of one during the week) for more than four hours.

According to the guardians, children had learned to use and access digital media from their mother (26 of the 38) and/or father (20), with other family members (12), or friends (2). Only one parent stated that his son had learned how to use the computer at school and nine stated that the child had learned on his/her own, which is consistent with learning through imitating adult practices, through trial and error, or learning through the games’ interactive tutorials (Edwards et al., 2016). All guardians stated they watched television with their children and 34 stated that they went with them to the cinema (30 on the weekend). However, only 16 read books with their children and only 15 read newspapers or magazines with them. Parent mediation was lower when it came to the children’s use of mobile digital media. While 31 stated they researched online with the children (26 solely on the weekend), only 14 played video games with them (13 solely on the weekend). When considering the parent’s perception, parent mediation practices included restrictive (implying usage restraints) and active (implying debate with children) and joint use mediation (implying the use of both parents and children). Even so, it is important to exclude no mediation in some cases or distance mediation (use of media as a babysitter). However, there is no clear evidence of mediation through participatory learning, in which parents and children debate use, learn together, and define use strategies (Zaman, Nouwen, Vanattenhoven, de Ferrerre, & Van Looy, 2016).

All the teachers considered that digital media has pedagogical potential, yet it was in these teachers’ classrooms that media content was used sporadically. Around three out of four of the teacher respondents stated that they used media content in their teaching practices, especially printed newspapers (79%), magazines (83%), and films (83%), while two out of three stated that they used videos (67%), and one out of two used digital games (50%). Other media formats such as televisions, smartphones, or tablets were absent from their classrooms. Furthermore, if and when media content was used, the children’s direct interaction with digital technology in the classroom was either weak or entirely absent. In this respect, the use of digital equipment that is most preferred by European children under eight years of age is not made largely available in schools (Chaudron, 2016). The reasons for this infrequent use were explained by the teacher respondents as being due to the lack of time available for children to be able to use media and technology in the classroom (22 out of 24) (92%), the pressure to prepare students for exams, the lack of resources available to be used by students, and the lack of technical support in schools (22 out of 24 for all issues identified) (92%), the latter being the reason why most teachers said they
totally agree (11 out of 24) (46%). Most parents agreed that children learn school content (30 of the 38) and non-school content (35 of the 38) through media, highlighting the importance of digital technologies in helping their children do their homework (especially parents of children attending primary school).

Nevertheless, even if 33 out of the 38 parent respondents admitted to talking with their children about digital media, the conversations focused more on limiting usage time and risk and less on encouraging information-search practices, including homework, and the advantages of online gaming. In brief, “even when holding negative attitudes towards digital media penetrating the home environment, parents seem to acknowledge beneficial uses” (Zaman et al., 2016, p. 15). This suggests that the “‘digital generation’ keep on being recalibrated” and the familiar context is “now entering a period where the parents of children born today might themselves very much come from a generation that itself had been labelled, digital” (Sefton-Green et al., 2016, p. 3). Even if parents are moving from beyond “the debate whether their children should or not use digital devices . . . there are still some concerns on the use of digital devices that parents are finding themselves being ‘confused’ and ‘without clear guidance’” (Palaiologou, 2017).

Finally, the results showed a lack of dialogue between teachers and parents regarding children’s digital media use and practices (16 teachers admitted to having these conversations, while only seven parents answered similarly). When they communicated with each other, digital media was always negatively referred to (that it was used for too long, the potential for video game addiction, and the dangers of the internet). Even the dialogue between teachers and students (referred to by 15 teachers but not confirmed by the children) allegedly occurred occasionally (‘some days’), with teachers admitting to discussing these issues with children ‘many days’ or ‘everyday’. This lack of dialogue may explain why teachers’ perceptions of media practices and uses by children clearly differed from the perspectives of the parents.

Training Teachers on Digital Literacy

Nowadays, “classrooms have become more diverse by virtue of students’ differing social roles, gender and ethnic differences, identity politics, life experiences and cultural settings” (Kulju et al., 2018, p. 81). Taking into consideration this above statement and the results presented, teacher training was the next step in the research project. An in-service teacher training programme (25 hours) was provided to teachers, taking place in January and February of 2016. The programme focussed on technical, operational, critical, and cultural competencies (such as critical analysis, reflexive and creative production of media messages), intercultural issues, human rights, and children’s rights. Teachers organised themselves in ten groups and developed digital literacy activities with 366 of their students (147 pre-schoolers and 219 primary-school students). The activities were embedded in the work that had been previously planned, and they were to use media (traditional and/or digital) as a resource and/or a study object. Each group established a duly justified topic, its objectives, and the development of the activity. Participants always had the support of the trainer (researcher and journalist) and had access to resources available through a course blog.

The activities covered diverse topics and objectives and were related with the operational area of the intervention model they followed, such as organising a book or creating a collective text from image exploitation. Concerning the critical area, teachers and students discussed the role of newspapers, internet safety, learning with and through the media, as well as critically analysing media messages (print and online newspapers, YouTube videos, comics) including advertising. The cultural competency aspect of the programme, especially related with social intervention through media, was covered less than the others, as only one group organised an activity aimed at tackling bullying in a school setting.
During the training assessment, teachers highlighted four aspects resulting from both the training course and the subsequent activities developed:

1. Knowledge about children’s media practices (“From the work done by the students, we reached the conclusion that we had not even considered initially, for example, that students from pre-school watch little television, but use the tablet more than an hour a day” – T24);
2. New resources (“It has enabled me, with the knowledge acquired, to lead students and to reflect on the different resources you can use to learn” – T1);
3. New pedagogical practices (“Students’ involvement allowed carrying out activities in the classroom for the first time. There was freedom to approach the classroom themes/resources according to each class/school” – T13);
4. Knowledge sharing among colleagues (“The presentation of the work was very enriching and allowed me to do some learning and put it into practice in my teaching activity” – T23).

**Intervention Plan and Strategies**

By the end of the training course, teachers were challenged to organise an intervention plan in partnership with the research team (including the trainer), but only eight teachers, who worked at the same school, accepted the proposal. The school had three pre-school and five primary-school classes, totalling 170 children aged from 3 to 9 years. Those eight teachers helped the research team during the data collection phase, aimed at characterising the context (April–June 2016) and developing digital literacy activities with children, as well as benefiting from the trainer support. The intervention plan was discussed and approved in September 2016. Its main aims were to develop digital literacy activities involving the children’s teachers, families, and their broader community, focusing on the operational, critical, and cultural areas when designing, producing, distributing, and implementing media messages. It was decided to start the publication of a printed school newspaper with four main objectives:

1. To reinforce the link between the school, the families, and the community;
2. To ensure that the children have the opportunity to express their opinion through the media;
3. To reinforce children’s critical thinking on the media and on social issues through the production of media messages;
4. To promote democracy at school and in the community, to advocate for human rights in general and children’s rights in particular.

Although aware of the contradiction of having a project on digital citizenship based on traditional printed media, the team decided to start this way as a means of overcoming the limitations of the context, namely the lack of technological and trained human resources at the school, and the fact that some families had no internet access at home.

The newspaper’s name (“*O Cusco*”, the busybody) and logo were chosen through a contest open to all the pupils. The design project was made free by a company in collaboration with the research team, and the printing of the newspaper (250 copies per edition) was sponsored by the Odivelas Municipality. Each edition was designed at the beginning of the term in collaboration with the eight teachers (three from pre-school and five from primary school). The school coordinator collected all the stories and information and coordinated the layout of the newspaper. The draft layout was analysed by the team, who suggested alterations, after which it was printed. The newspaper was first distributed within the school and among the families. From the second
issue onwards, the newspaper was also distributed on the last day of class of each term within the broader community.

The headline of the first edition was “Being a digital citizen” (December 2016) and involved pre-school children interviewing their parents and grandparents about what toys they had when they were little and what they played with. First- and second-year pupils asked their parents and grandparents what the media was like when they were children, while third- and fourth-year pupils organised debates on the development of the media. One of these debates was marked by a pupil’s question: “teacher, what was the internet like when you were a child?” The intergenerational activity contributed to the pupils’ better understanding of how the media, toys, and games have developed over the years. It also allowed for dialogue and reflection at school, within the families, and in the community. Children produced media messages, participated and intervened socially and, in this respect, the intervention model was being applied.

In March 2017 the children debated on human rights and children’s rights. One of the pre-school teachers took a rabbit to school inside a wooden box and asked children to think about the animal’s needs, imagining that it was alone in the world. The children named the rabbit “Pantufa” (translated to Slipper, which was the most-voted-for name) and listed all its necessities, including its need for a home, family, and food. Next, they were asked to think that, instead of a rabbit, they were considering a child. Although many children confused rights and duties, the activity allowed, through drawing, to stress that the interests of children come before those of adults (Article 3), that their right to life is inalienable (Article 6), as is the right to express their opinions, and, furthermore, that their opinions should be considered regarding any matter that concerns them (Article 12). These ideas were reinforced in the school newspaper for the adults to read.

In June 2017, in compliance with new legislation which decreed that recreation time in the school yard was pedagogical time, pupils were invited to submit proposals to change their school yard (which consisted of a football field and areas surrounding the primary school, where there was no equipment at all). Given the opportunity to express their opinions and wishes through the school newspaper, either through text or drawing, the pre-schoolers drew a yard with wooden houses in trees, swings, and slides, whereas the primary-school children expressed their desire for a swimming pool, a disco, and even a circus. Second-year pupils wrote to the local authorities and concluded their letter saying: “we would just like to be heard and that our requests are taken into consideration when you consider and are able to renovate the school, which belongs to everyone but is mostly the children’s”. Both the drawings and the letters were published in the school newspaper. In 2018 the children again needed to rethink both the school yard and the school itself by building a scale model with the help of one of the children’s mother (an architect) and the husband of one of the kindergarten teachers. The photo of the model would be the headline of the June edition.

In December 2017 they wrote a letter to the Minister of Education (headline of the fourth edition). Among their several requests, children focussed on the renovation of the school yard and the changes to course contents: “we have analysed course contents and consider them too long. We do not have time to practice what we are taught! We suggest that the contents are revised and improved and take us, six to ten-year-old pupils, into consideration”.

In March 2018 children expressed their interest in creating audio-visual content, so the team designed a proposal that linked the pupils’ interests in terms of current affairs and critical analysis of the news through the production of a news broadcast, hosted by the children and video-recorded. On a Friday, all the children were asked to choose a news story that interested them, a task they could carry out with the help of their family or someone within the broader community. On Monday, the topics of the news were listed on the board of all the classrooms and the pupils voted on the news they considered most relevant. The 16 most-voted-for pieces of news
were selected for Cusco TV’s first news broadcast, which they called “Telecusco”. The images were recorded with a mobile phone and edited using Movie Maker. The pupils debated current affairs and involved their families and members of their community. The video was watched by the children as well as by the parents, to whom the need to talk about current affairs with their children was reiterated, as many of the pupils found it difficult to understand what was being said, as the intended audience for the news is adults.

Although the project officially ended in February 2018, teachers and pupils have continued to produce content for the school newspaper with the help of the researchers and local authorities. In February 2019 they recorded their first ‘professional’ news service at the Autonoma University of Lisbon studios.

Summary and Analysis

The project and its results showed that the intervention model is suitable to develop a community-based action research project aimed to develop very young children’s citizenship and digital literacy competencies. Starting with an in-service teacher training programme (and to continue supporting teachers through planning and assessment meetings), to then characterising the community context, and adapting the model on a regular basis, it is possible to continuously develop adequate digital literacy activities involving teachers, children, parents, and other community members.

The school’s voluntary adoption of the project enabled its continued sustainability, with the school newspaper progressively becoming the community newspaper. According to the teachers’ perceptions, the activities have helped children to mobilise their operational, critical, and cultural areas, as well as increasing the children’s social participation both in and outside the school and shaping their practices as citizens. Results also showed that children are “digitally fluent from a very young age”, suggesting the need for “a re-conceptualisation of young children’s learning in early years pedagogy” as well as a re-examination of “the way children learn and the way in which the early years workforce organise their learning environments” (Palaiologou, 2016). As the project showed, children participating largely through traditional printed media are slowly converting across to digital media, as exemplified by the production of the news broadcast. This situation must evolve rapidly to overcome the gap between high digital use at home versus low digital use at school.

This project is however limited by a set of factors. First, it has been developed in a local context and its results cannot be extrapolated. Second, the results are also based on teachers’ and parents’ perceptions, and on data collected by the researchers through tools adapted or designed by them and not validated for the Portuguese population. Third, study participants were those who voluntarily accepted and/or those authorised to participate, which means that the results may have been different even if they involved individuals in the same context.

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