Parent-child joint reading of digital books in bilingual families in Malta

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A B S T R A C T

We examined parent-child shared reading of Maltese and English e-books in four bilingual families. Analysis of the participant videos, questionnaires and semi-structured interview data revealed positive engagement of the participating families, substantiated with three main themes from the participants' interview accounts: balanced use of e-books and print books, the importance of nurturing child's independence with e-book use, and the unique value of e-books for child's learning, especially in terms of repetition. A theoretically-driven analysis of the video data placed the e-books' affordances in relation to six facets of children's individual engagement (personalized, sustained, shared, creative, affective and interactive), but it needed to be expanded with four additional facets of parent-child joint engagement (didactic, dialogical, self-directed and experiential).

1. Introduction

Sharing books with children is a very effective context for children's early learning: parent-child storybook reading predicts children's emergent literacy, and later achievement in school (e.g., Flack and Horst 2018). Shared reading supports children's focused and joint attention, working and long-term memory, children's knowledge base about the world and is also a unique opportunity for social bonding between parents and children (e.g. Ezell & Justice, 2005; Chaparro-Moreno, Reali & Maldonado-Carreño, 2017). Given these well-documented benefits of shared reading with print books, it is reasonable to ask whether the positive effects continue with digital books (also known as e-books).

As instantiated in the recent Covid-19 pandemic, some families do not have access to (m)any print books at home and rely on local libraries and the school for supplying their children with reading material (Jæger & Blaabæk, 2020). Unlike their parents, children prefer to read digitally or at least they enjoy reading digitally as much as they enjoy reading on paper (Grimshaw, Dungworth, McKnight & Anne Morris, 2007). Well-designed digital books have higher learning benefits than print books for children with special educational needs (Korat & Falk 2017) and can, in some contexts, replace the reading adult with appropriate scaffolds and support during the child's reading (Takacs, Swart & Bus 2015). Furthermore, digital books, unlike print books, provide access to spoken and written words in multiple languages, which supports children's language development, especially for minority-language children (Smeets & Bus, 2015; Korat, Atishkin, & Segal-Drori, 2021). Despite these benefits, kindergarten (Undheim & Jernes 2020) and early primary school teachers (Wang, Christ, and Mifsud 2020) report to receive little professional support to guide children's use of digital

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books in the classroom. Parents report not being digitally literate enough to adequately support children's engagement on the screen (Author, 2020). Furthermore, interview studies show that parents have negative (Strouse and Ganea 2017) or conflicted (Kucirkova & Flewitt, 2020) views on children's digital books, with most preferring to read paper books. The literature suggests this is mostly because of low-quality design of many popular children's digital books. Descriptive analyses of the quality of most popular European children's digital books report their low educational value (Korat & Falk 2017; Sari, Takacs & Bus 2017). A recent meta-analysis found that when comparing paper and digital books on these traditional outcome measures, the paper books outweigh digital books (Furenes, Kucirkova, & Bus, 2021). The design of the digital books significantly influenced these effects: e-books designed with highly interactive features impeded children's story comprehension, while those with limited interactivity outweighed paper books (ibid).

In this study we aimed to gain a detailed understanding of the potential of well-designed digital books to engage families and to examine, in a natural home environment, how bilingual Maltese-English parents and their 5–7-years-old children interact when sharing e-books. Bilingual families are a diverse but little studied population in the context of shared reading at home (Gonzalez-Barrero, Salama-Siroishka, Dubé, Brouillard, & Byers-Heinlein, 2021). This is an important research gap given the increasing number of bilingual families worldwide (De Houwer, 2020), and the essential role families play in children's literacy development (e.g. Villiger, Wandeler & Niggli, 2014). Unlike children growing up in monolingual families, children from bilingual families are exposed to resources and activities in two languages, and thus receive additional language input (Kremin, Alves, Orena, Polka, & Byers-Heinlein, 2021), which influences their language proficiency and interest in literacy activities (Cha & Goldenberg, 2015).

Given the little studied context of shared reading of digital books at home and the unique profile of the participants in our study, we adopted a multiple case study approach with an exploratory paradigm (Woodhead & Faulkner 2008). We begin by outlining the key concepts important to our research foci on parent-child reading of e-books in bilingual families in Malta. This is followed by the theoretical framework that we adopted for analysing and interpreting the data, and a summary of previous research on parent-child e-reading and the engagement of bilingual families in Malta.

2. Key terms and key foci in our study

'Bilingual learning' means learning in two languages, which can be either represented to the same extent or to a varying extent (Hamers & Blanc 2000). Bilingual education in schools is realised through instruction by teachers and children's engagement in two languages and in families by one or both parents speaking to the child in two languages. While bilingual education in schools is strategically supported through immersion programs (e.g., Swedish immersion program in Finnish schools) or the teaching of some subjects in a language different from the children's first language (e.g. international schools in Eastern European countries), bilingual households negotiate their own, idiosyncratic, ways for raising their children in two languages (Murillo, 2012). In our study, some families spoke both Maltese and English at home, and some only Maltese, with various language habits (e.g. father speaks Maltese only, mother speaks English when teaching new concepts).

The term 'digital books' implies that the books appear on a screen, which can be a computer, smartphone or tablet. In this study we focus on digital books displayed on an iPad. We focus on digital picture books, that is books that convey meaning through both the written text and illustrations (Salisbury & Styles 2012). While print picture books represent meaning in two modes - visual and haptic - digital picture books contain voice recordings and music, thus engaging also the audio mode of meaning-making. Digital picture books contain various levels of interactivity, which can be either controlled by the user or activated automatically. The digital books that are presented on touchscreens, such as tablets and smartphones, typically contain "hotspots", which are areas that can be activated through touch or movement and perform certain actions. For example, the hotspots in one of the digital books used in this study (the Little Red Riding Hood by Nosy Crow Ltd.) make the Little Red speak, run, pour honey or pick up meadow flowers.

3. Theoretical framework

Overarching our analysis and interpretation of our data is Vygotsky's (1978) socio-cultural theory, according to which the social and cultural context in which children grow up explains the many dimensions of a child's learning and development. Socio-cultural processes are central to a child's development of higher cognitive processes and ability to function in the world. In this process, the "more knowledgeable others", that is adults who care or teach children, expand their understanding through structured activities (Moll, 2013). These adults enable children to engage in and complete more complex tasks than the children could on their own and they thus scaffold children's meaning-making. The traditions and techniques of this gradual knowledge acquisition are different in diverse cultures (Rogoff, 2003), as shown in a hallmark study by Heath (1983). In Heath's work, the diverse language and literacy activities in four different socio-cultural US communities were described in relation to the immediate social context of the children growing up in these communities. The families' schedules of work and play, childcare choices, and modes of transportation were not separable from the children's individual learning and their competence building. In our study, the micro focus on parent-child reading of digital books was interwoven with the families' wider socio-cultural practices in Malta and those engendered by the international trend of an increasingly digital reading culture (Mangen, Hoel, Jernes, & Moser, 2019).

In order to understand the complex relationship between parent-child engagement with e-books and the individual e-books' design, we draw on literature concerned with 'affordances'. Affordances is a theoretical term that refers to the characteristics of tools that humans engage with, and that materialize through this engagement in that they elicit specific responses and behaviours (Heft, 1989). Affordances are not fixed properties but rather relational to the context of use (Hutchby 2001) or, as it was in our study, a specific reading activity. To investigate parent-child interaction in relation to the affordances of digital books, we follow the theoretical framework of the 'Six Affordances of Digital Books' put forward by Kucirkova, Littleton, and Cremin (2016) . Based on a conceptual

review of the e-book field and the reading for pleasure literature, the authors identified six key facets that connect children's reading enjoyment to novel affordances of children's digital books. These affordances become foregrounded in the digital format and relate to six types, or six facets, of children's engagement during reading: affective, creative, sustained, shared, personalized and interactive engagement. Kucirkova et al. (2016) outlined that the six facets of engagement build on Craft's (2011) early work on digital childhoods and research concerning the challenges of children growing up in digitized international contexts. Inspired by this work, we aimed to examine the parent-child engagement with digital books not only empirically but also theoretically. While the original formulation by Kucirkova et al. (2016) of the six engagement facets focused on children's engagement, our study was concerned with joint *parent-child* engagement.

4. Parent-child engagement with digital books

Observational studies that compared quality of parents' talk when reading digital versus paper books with their children, have consistently found higher-quality parents' reading styles and personal preference for print books (e.g., Strouse & Ganea 2017). Research also indicates that the less interactive the digital books are, the higher the quality of parents' scaffolding (e.g., Parish-Morris, Mahajan, Hirsh-Pasek, Golinkoff & Molly Fuller Collins 2013). Richter and Courage (2017) compared preschoolers' engagement with stories presented in a digital and paper format in relation to the child's attention, engagement, and communication during readings and reported differences in the content of children's talk in relation to the book format. Other studies show that the instruction, that is the adult's mediation, is crucial for interactive storybooks to make a difference to children's outcomes (Kelley and Kinney, 2017). In other words, it does not seem to be the book format but rather the interaction between the book's affordances and the parents' reading style with the digital books, that influence how much children learn from the joint reading session. There is no linear influence, and the interconnections among the parents' reading practices, the child's and the e-book's characteristics, need to be better understood to establish the value of children's digital books (Courage, 2019). The interconnections are especially important in the context of the diverse families in which children grow up, including bilingual families.

5. Bilingual families in Malta

Malta has a long-standing history of bilingualism, both Maltese and English are spoken at home and in schools. The sociolinguistic situation is that of plurilingual repertoires (i.e. speakers are competent in both languages and can switch between them) with language competencies at different points on the bilingual continuum for different individuals (Council of Europe 2015). Both Maltese and English are introduced simultaneously- early on in the kindergarten classes and are available as languages of schooling and in the wider out-of-school environment, where learners are in constant contact with both languages (Mifsud & Vella 2018a). As such, Malta is a case of the so-called societal bilingualism (Sebba, 2010), that is, at the level of social organization, rather than particular individuals or families. English and Maltese languages are taught and learned using an immersion pedagogy as part of Malta's bilingual education policy (Ministry for Education and Employment, Malta, 2014; 2016), and teachers mediate children's language learning from Maltese to English and vice versa as needed (Mifsud & Vella 2018b). The status of both English and Maltese carries a significant socio-cultural importance in the society (Vella, 2013). The question of whether and how families use the two languages when reading digital books, has not been examined by previous research. Digital books, with their flexibility to accommodate multiple languages, could potentially support a bilingual learning context at home.

In this study, we sought to examine in detail the parents' and children's engagement during the reading of digital books, and the interrelationship between their joint e-reading engagement and the bilingual nature of Maltese families. Given the close relationship between the affordances of a specific design of digital books and children's engagement reported by previous studies, we focused on digital books of high-quality design and available in both English and Maltese.

6. High-quality digital books in different languages

Research shows that the most popular apps and digital books used by children worldwide are not in local languages. Sari et al., (2017) reviewed the best-selling 50 paid and 50 free digital books from iTunes and Google Play in Netherlands, Hungary and Turkey, and analyzed them according to various criteria, including whether the stories were translated to Dutch, Hungarian and Turkish. The results showed that in Hungary 90% of e-books were not in the local language, in Turkey it was 76% and in the Netherlands 50%. Digital books which included the local language were more expensive and so were those which included spoken language recordings. In another study, Bus et al. (2019) described digital books for young children in five relatively small languages: Dutch, Catalonian, Maltese, Norwegian, and Hebrew. The analysis by Bus et al (2019) found that there were very few digital books for young children in these five languages and that by and large, the smaller the language, the lower the number of commercially produced digital books (with the exception of Norway). To our knowledge, only one study has examined Maltese children's use of e-books before: a qualitative study by Wang et al. (2020), which analyzed videos of 27 children reading e-books in English and in the school context. The researchers reported distinct patterns of high-comprehension processes with the linguistic features of the e-books, and recommended future research into bilingual children's use of e-books in formal learning environments. In this study, we purposefully chose two award-winning English apps and two Maltese e-books developed by the Ministry of Education in Malta, as we were interested in parent-child engagement with e-books in their native language and with a high-quality design.

7. Study aims

We set out to investigate parent-child shared engagement with digital books in bilingual Maltese families. We aimed to provide detailed observations that would complement and expand current literature on children's digital reading and address the research gaps regarding parent-child e-reading patterns in bilingual families. The purpose of our first research question was therefore exploratory:

• How do bilingual Maltese-English parents and children engage with digital books at home?

We also sought to understand, on a theoretical level, the contribution of parent-child reading of digital books to their engagement patterns at home. With this objective, we aimed to complement current literature by focusing on the six facets of engagement involved in the child's engagement with digital books (Kucirkova et al., 2016) and as such, offer a more nuanced understanding of the parent-child shared reading engagement. This aim was guided by the following research question:

• How do the six facets of engagement relate to parent-child shared reading of digital books at home?

8. Methods

8.1. Study procedure

A multiple case study design was followed (Stake, 2013), with four cases, each representing one family. The families were invited to participate in the study using a parent information letter and a consent form. Once the families agreed to participate, they were provided with University-owned iPads that were pre-loaded with four digital books, two in English and two in Maltese. The families were also provided with small hand-held cameras and tripods, with the instruction to video-record themselves when they read the digital books together with their children at home. The researcher (second author of this paper) visited each family two times: at the first visit, she brought to the family the iPads and cameras, explained how to operate them and provided the families with a detailed protocol about ways to record shared reading sessions. The researcher kept in individual telephone and email contact with the families in-between her visits. The participants were encouraged to engage with the digital books, as and when they wished, for a duration of up to ten weeks. Following this period, the researcher visited the families again to collect back the cameras and the iPads. Two of the four families requested to keep the iPad and cameras beyond the study period and one family made additional recordings, which we included in the analysis.

We collected data using three types of methods: questionnaires, semi-structured interviews and video-based observations.

8.1.1. Questionnaires

The participating families were encouraged to nominate one parent as the key parent contact for the study and this key parent contact was provided with a short online questionnaire (see Appendix A) to fill out before the researcher's first visit to their homes. The information from the questionnaires was used for constructing descriptive "family portraits" reported in participants' description.

8.1.2. Interviews

Semi-structured interviews were conducted during the first visit to determine the attitudes of the families towards e-reading prior to the study. During the second visit, semi-structured interviews were conducted to establish the parents' perspectives on the digital books and their overall experience with them. The interviews were conducted by the researcher t, following the interview protocol (Appendix B). All interviews were audio-recorded, anonymized and transcribed.

8.1.3. Video observations

Video recordings were carried out by the participating families, who, in this way, acted as co-researchers collecting video data (Monk, 2014). We provided the families with cameras and tripods and trained them on how to use them. We encouraged them to film all sessions when they read the digital books together and emphasized that we were interested in authentic interactions, showing both positive and negative engagements. Some families filmed themselves more often than others, but all families completed at least four high-quality recordings. These were captured on the camera and securely stored on the researcher's encrypted computer. The parent-child conversations in the videos were transcribed and their key activities on the screen were described in Word documents accompanying each video. The research team then used these materials to analyze the videos based on the six facets of engagement.

8.2. Study materials

The digital books used in this study were two Maltese (Pinu jżomm ruħu nadif [Pinu keeps himself clean], Żaqqinu jagħżel x'jiekol [Żaqqinu chooses what to eat]) and two English-language e-books (Little Red Riding Hood and Cinderella by Nosy Crow Ltd.). The ones analysed in this article are: Żaqqinu jagħżel x'jiekol [Żaqqinu chooses what to eat] and Little Red Riding Hood. We chose these two e-books for deeper analysis because they seemed to engage the families most: the parents commented on these two books most during the interviews and chose them most frequently in the video-recorded sessions.

The Little Red Riding Hood e-book was developed by Nosy Crow and Ed Bryan as part of a series of fairytale e-books by the publisher. The e-book follows a non-linear narrative, and contains some interactive features throughout the story, with animation, voiceover, original music and text highlighting for early readers. The story plot follows the traditional fairytale with an innovative ending with the Little Red defeating the wolf. Żaqqinu jagħżel x'jiekol [Żaqqinu chooses what to eat] was developed by the Department of eLearning of the Maltese Ministry for Education, with the main purpose to promote healthy eating. The app includes pictures of favourite foods and drinks with texts prompting children to reflect on whether they are healthy or not for them. The two e-books thus differed not only by the language, but also by the extent to which they were fictional or narrative-based.

9. Data analysis

Questionnaire data were examined through the traditional procedure of a content analysis, using open and axial coding (Corbin and Strauss 2014). All interviews were transcribed verbatim by native Maltese and English speakers and translated from Maltese to English, so that they could be read and analyzed by all authors. In the analysis stage of open coding, all three authors read through the transcripts and noted down some common and recurring themes. In the axial coding stage, we deepened the conceptual links between the themes to capture the essence of parents' perceptions. We compared the themes between and across the transcripts in three steps of a standard hermeneutic process-description, reduction, and interpretation (Lanigan, 1988). We also used the constant comparative method to identify recurrent themes across transcripts (Corbin and Strauss 2014). Coding validity was established through discussion among the study authors, who agreed the final themes reported in the Findings.

Video data was analysed using the six facets of engagement outlined in Kucirkova et al. (2016) and further explained in supporting documents for teachers available from the United Kingdom Literacy Association website (www.ukla.org). In summary, the analysis criteria were:

- Affective engagement relates to feelings and behavioral engagement, visible through the child's absorption or immersion in the book, indicating the child takes delight in interacting with the resource.
- Interactive engagement refers to the child's active engagement with the e-book's interactive features, such as hotspots, multimedia or mini-games.
- Sustained engagement refers to real-time presence during the reading experience, concentrated attention and focus on the reading resource.
- Creative engagement relates to an immersive experience which encourages children to entertain 'what if' scenarios and possibilities.
- Personalized engagement concerns experiences individualized to each child, through automatic self-paced reading feedback or options for readers to add their own content.
- Shared engagement relates to collaboration and feeling of a collective experience during reading, physically as well as remotely.

10. Study participants

The study sample was purposefully selected by relying on our personal contacts. The second author identified and contacted four families matching our recruitment criteria: the families needed to be bilingual, live in different parts of Malta and have children aged between 4 and 8 years. In alignment with our socio-cultural orientation, we outline a detailed description of each family in the form of "family portraits". The family portraits are based on information about each family that we collected as part of the questionnaires and initial interviews conducted by the research assistant.

10.1. Family 1 portrait

The mother is a teacher and the father works in financial services. Both parents are in their thirties and are educated to a Bachelor's degree. The participating child is a girl who is 7 years and 5 months old and is the youngest child in the family. She attends a State school where she speaks in both Maltese and English, although she speaks only Maltese at home. The parents are moderately confident in using technologies. The mother does not have any concerns about the child reading digitally and thinks that the amount of time the child spends using digital media is "just right".

10.2. Family 2 portrait

The parents are in their forties . The mother works as a teacher in a primary school and the father works in the marine industry. The participating child is the youngest child in the family and is 7 years and 10 months old. He attends a State school and can read independently. The family speaks Maltese at home and English and Maltese to the child. The parents are moderately confident in using technology and report being concerned that the boy uses technology "a bit too much".

10.3. Family 3 portrait

The father is an IT coordinator and the mother works as a support teacher. They are in their thirties. The child is an only child and 4

years and 11 months old at the beginning of the project). She attends an Independent school. The family speaks Maltese and English at home and only English to the child. The parents reported to be reasonably confident technology users and that the amount of time the child spends using digital media is low.

10.4. Family 4 portrait

The father is aged between 40 and 50 years, he holds a Masters degree and works as a head of department for Literacy in a local school. The mother is a teacher. The parents consider themselves proficient technology users. The boy is an only child, aged 6 years and 11 months at the start of the project. The child attends a Church school and is able to read independently. The family speaks only Maltese at home. The father feels that the amount of time the child spends using digital media is a bit too much and is concerned that technology will replace the child's other activities, including playing outside, and may hinder his ability to reason independently.

As for technology ownership at home, all the families reported to own a TV, smartphone, tablet and laptop. Apart from family 4, all families had a game console and family 1 also had an educational game device.

11. Ethical considerations

The study was approved by the Research Ethics Committee at the University of Malta and followed standard educational guidelines for ethical data collection, including the right for the participants to withdraw from the study anytime, without any negative consequences, or to have their data, or parts of the data, removed from the analysis. Throughout the study, we emphasized to the participants that there are no right or wrong answers in reading with children, and that we are interested in understanding on a deep and genuine level, their views on the four e-books, and how they impact on the family reading engagement with their children. We approached the participants as research partners and remained in close dialogue with them through to the analysis stage in which we asked the participants to view the videoed interactions together with us and comment on any aspect of the interaction they noticed in the videos. The child and adult participants' ongoing consent was monitored throughout the study by the first and second authors.

12. Findings

The Findings section is structured according to the main themes identified in the interview data, followed by the six facets of engagement identified in the video observations. We provide salient examples from the transcripts to substantiate broader patterns we identified in the data.

12.1. Findings from the interviews

Our content analysis of the interviews yielded three main themes: 1. Balanced use of print and digital books; 2. Child's independence in using digital books; 3. Unique value of digital books. The individual families are referred to as Family1 (F1), Family 2 (F2), Family 3 (F3) and Family 4 (F4).

12.1.1. Theme 1: Balanced use of print and digital books
The families were clear that the digital books are there not to replace print books but rather to be integrated into their existing reading routines. For Family 1 this was part of their routine reading habits before the study. According to the mother she read with her child every day in the evening, both paper books and e-books on the laptop, as part of the Bug Club scheme. The mother made it clear that children need a variety of technologies. but the non-negotiable is the adult's support during the child's technology use. Referring to her daughter's technology use, the mother said: "she is into everything.., she likes everything- paper books, e-books, PlayStation, TV etc. and the only rule when using technology is that the family is next to her or somewhere close. That is it." (F1)

Similarly in Family 2, the mother told us that she reads with her boy every day, both in Maltese and in English, not only for school, but also fiction books or stories. Sometimes they also read e-books from the Oxford Owl series on the laptop. E-books were not read in Family 3 before our study, but the father told us in the interview that he plans to integrate them into their reading routine:

"I think we have to integrate this thing [pointing at the iPad] with the traditional reading. It's not something to replace, it's something to combine and find balance from both methods – reading the traditional book, the paper book, and using the tablet for reading." (F3)

Both Families 3 and 4 shared, during the interviews, that they have divided the languages at home while reading books. The mothers read to their child in English and the fathers in Maltese. These arrangements remained in place during the study as well.

"It depends, for example when I read for him, I normally read Maltese books, then [mother's name] reads English books, so we have divided the language. I chose the Maltese, [mother's name] chose the English ones." (F4)

12.1.2. Theme 2: Child's independence
Despite the well-established routine of shared reading in the families, the participating parents shared with us their concern about the possibility and need for children to use the digital books independently, without the parents' support. The mother in Family 1 told us that this independent nature of reading e-books corresponds to the girl's use of technologies more broadly: "The girl uses it to research things, to google words and to listen to their pronunciation". (F1) The mother in Family 3 shared a similar sentiment, explaining that her support for the child's independent use of the e-books is future-proofing the child's education: "it was him, we

didn't… because we felt that all the time with him.. we had to give him some space to observe and experiment what was there. So he had that time. After all he has to know how to go about them on his own …" (F3)

In contrast, the parents in Family 4 felt strongly about their need to monitor and support the child during the interaction: "…they read for themselves[the children]. But we stayed near him and we helped in the activities, but no, we didn't actually read out loud." (F4)

12.1.3. Theme 3: Unique value of digital books

The families noted several positive features of the digital books, which they perceived as added value when compared with print books. The mother in Family 1 valued the interactivity: "These movements and interactions we don't find them in the normal books.. So, they are a plus." (F1) Similarly, the mothers in Family 2 and Family 3 saw the interactive elements as an added value to the reading experience:

"So these have… other things, you know… happening apart from the reading bit. So they are more interactive, their obviously, enjoyment I think it's more. It depends on what kind of reading you are doing." (F2)

"But the advantage of the apps over the traditional books obviously, are the activities afterwards. They are really nice and he really likes them. So that's an advantage. The activities which follow, they are very nice, and we don't find them in traditional books." (F3)

Family 4 emphasised the importance of the Maltese language and the lack of reading resources in Maltese. The father said during the interview that he had access to e-books in Maltese through his work in the education sector and that these helped him to engage with his son in joint reading: "…in Maltese, especially, because in Maltese we lack the amount of resources we have in English. So, whenever there is something new in Maltese, usually I would show it to him immediately. (…) I have access to Bug Club.. and um.. it's been a long time now since we read on this, on this kind of um.. platform, educational platform. But when I had access to it and when I used it he would come, sit next to me and read it, and read those e-books." (F4)

The interactivity in digital books seemed to be especially useful for repeated reading for the child, as commented on by the mother in Family 1: "Like usually when we read paper books you don't read them over and over again … they are so interactive, one time wouldn't have been enough." (F1) The mother in Family 3 noticed the added value of repetition in e-books too: "So with a book, you read it once, you discuss it and then we go on to another book. So with this, you can see a different way of doing it, or doing another activity, so repetition is more often here than in a book." (F3)

12.2. Findings from the video observations

This section contains extracts that we selected during the video analyses as unique examples of the six facets of engagement, following the description in the Kucirkova et al. (2016) framework. Our examples are illustrative of the ways in which individual families engaged with the app's affordances and how this engagement corresponded to the definitions provided by Kucirkova et al. (2016). Further engagement examples of the individual six categories are available upon request from the authors.

12.2.1. Interactive engagement

The example illustrates the parent's encouragement of the boy's interactivity with the e-book's features, pointing to the hotspots and the e-book's design features.

Family 3:

Mother (M) reads: Can you help Little Red Riding Hood (LRRH) pack the basket.
M: *How are you gonna help her?*
Boy (B): *By holding the handle.*
M: *Mhm.*
[Boy taps on LRRH and moves her.]

12.2.2. Creative engagement

The children's creativity and curiosity came to the fore in parts where they were encouraged to interpret different scenarios and act on them. The mother scaffolded the child's response by helping him to interpret the situation in the fairy tale.

Family 4:

M: Mmm, why is he scared? Cause he's got thistles. Ejja, help him. (Come on, help him.).
B: Issa tagħmilhom ġol-basket naf! (Now you have to put them in the basket. I know!).

12.2.3. Sustained engagement

Sustained engagement came to the fore when the children could feel with the story characters, identify with the characters' experiences and followed the story with heightened expectations about the progress of the story plot.

Family 4:

LRRH: I am going to be tired soon.
M: Mhm, after all this running about.
Mother whispers: Where's the wolf?

B: We are passing him. [Keeps swiping LRRH].

12.2.4. Shared engagement

Instances of shared engagement became visible when the digital book was equally shared between the parent and the child and when one of the parents supplemented the book's text with their own additions to the story and interactive experience, as seen in this extract:

Family 4:

M: Ooh, I am. Mmm [mother whispering] Big Bad Wolf.
W: Don't tell her I'm here.
M: Don't listen to her.. Look out. Mhux ħa tgħidilha? (Are you not going to tell her?) Għidilha li (Tell her that) Tell her that there's the big bad wolf.
B: There's the big bad wolf.

12.2.5. Affective engagement

Children's affective engagement was evident in their smiles and laughter as they engaged with the story, which seemed to be present when they attempted to do something mischievous such as for example disobeying the book's instructions. This was often a moment of amusement for their parents too, as captured in this extract.

Family 4:

M: Noo, give it to grandma.
[Boy laughs.].
B: Give everything to the Riding Hood.:) [He keeps feeding LRRH].
M: Ahh, ejj, (Ahh, come on) she will get a stomach ache.
[Boy laughs.].
M to Father (F): Look at what he's giving her. [to Boy] That's enough, give the rest to grandma. She told you that's enough.

12.2.6. Personalized engagement

Personalized engagement was by and large attributable to the parents' individualized feedback provided to the child during the interaction. In these instances, the parents adopted didactic strategies and talked over the audio-recording in the e-books, as seen in this extract:

Family 3:

M: What are you doing? What are you doing?
F: He is making her run. [Mother nods.].
M: What are you doing? If you gonna, if you are not gonna speak I am going to turn it off.
B: He, she is going.
M: Where is she [the wolf appears.] Ahh [Mother exclaims and starts reading.].

13. Discussion

There is a wide research consensus that 'book reading is not an isolated technique to stimulate early learning in the domain of literacy but a profoundly social process, embedded in parent-child relationships' (Bus, 2001, p. 41). In this study, we sought to describe and understand in more detail parent-child shared reading engagement with digital books. The thematic analysis found that digital books were perceived as a suitable supplement for children's reading with parents at home. Parents were keen to support children's independent reading with the resources and perceived them as uniquely valuable for their children's reading. This finding expands current literature on parent-child reading of digital books that thus far, has reported parents' concerns and often negative engagement with digital books at home. **The choice of books we provided the parents withas well as the particular nature of our study sample (bilingual, highly educated families),may have significantly influenced the direction of our results,** The exploratory design of our study can only suggest possible influences and we propose that the use of both English and Maltese during the family interactions constitutes a unique engagement pattern with digital books at home, which has not been reported in the literature before. The participating families incorporated the digital books into their reading routines, using both English and Maltese during their reading and drawing on the diverse affordances of the digital books. This corresponded to the books' language as well as the families' usual reading habits. Sultana (2014) analyzed the language use of four bilingual Maltese parents of 4 to 6 year-old children, whom she observed over a period of ten months. Sultana (2014) concluded that bilingualism was evident in all four families to various degrees: Maltese was the language used mainly for communication, however for reading and writing, watching TV or using ICT, English was the preferred language. In our study, the choice of language was not only dependent on the specific medium (digital book) but also part of the families' traditional reading routines at home.

Our theoretically-driven analysis of the main themes in the videos aimed to establish patterns of engagement that would correspond to the six facets of engagement identified by Kucirkova et al. (2016). The analysis framework was useful in capturing the main patterns of the child's engagement with the e-books' affordances. However, we found the framework insufficient to capture the joint

parent-child engagement patterns that we observed in our study. While the framework might be well suited to support teachers and parents who evaluate children's independent or child-to-child's use of digital books, we needed to add dimensions relevant for the parents' supporting role during shared e-reading. In particular, we identified four additional facets that were intertwined with the children's engagement patterns but not captured by the original framework: didactic, experiential, self-directed and dialogic. Didactic engagement was evident in the process engendered by a highly structured interaction in the personalized engagement category. As the example in the Findings section illustrates, there was evidence not only of child's personalized engagement, but also of parents' scaffolding and guidance of the child through the personalized interaction. In the shared and sustained engagement examples, there was also evidence of dialogue when the parents attempted to elaborate on the book's text and engage the child in the story. Similarly to the theme of independent engagement revealed in the interview data, we found evidence of parents supporting children's self-directed engagement with the e-books, especially during the child's creative engagement. Less evidence in the present data was available for the interactive and affective engagement, which may be related to the nature of joint parent-child engagement. The example we provide in the Findings section shows that children's actions were somewhat constrained by the parents' scaffolding and frequent instructions.

These reflections on the video analysis and our theoretical socio-cultural orientation prompted us to expand the framework of children's engagement during e-reading proposed by Kucirkova et al. (2016) (Kucirkova et al., 2016) with four additional facets. Drawing on Vygotsky's (1978) emphasis on the role of adults in scaffolding children's understanding, we propose that these additional facets constitute sites of opportunity for adults to enrich children's independent engagement with e-books. In Fig. 1, we adapt the original framework with our four facets, illustrating the theoretical expansion of the original framework.

We do not propose that the additional facets replace the original categories, but rather expand them to dimensions relevant for shared parent-child engagement. These extended facets of engagement could be usefully employed in future studies for structured observations of parent-child shared reading of e-books at home.

13.1. Study limitations and future research directions

The Covid-19 pandemic has brought to the fore the easier accessibility of e-books when compared to print books. This is the case for some families more than others. The parents who participated in our study considered digital books as a suitable and engaging supplement for reading with their children at home. They were keen to support their children's independent reading with digital books and considered them to be uniquely valuable for their bilingual reading practices at home. Future studies may look at how more e-books can be incorporated into the daily reading activities of diverse families. In particular, it is worth noting that the families participating in our study had a teacher/teacher support educator as the parent reading with the child, which may have influenced the findings. Research involving participants from diverse socioeconomic and educational backgrounds may reveal a larger scope of attitudes and reading patterns with children's digital books. It would be also interesting to further investigate the language choices and preferences of families when reading e-books in different languages.

Overall, our study documented the unique value of e-books in engaging bilingual families in shared reading at home, and expanded the theoretical model of six engagement facets to criteria that correspond to shared parent-child engagement during e-reading. Our findings call for more attention to the potential of e-books to linguistically and socially enrich the shared reading practices of individual families.
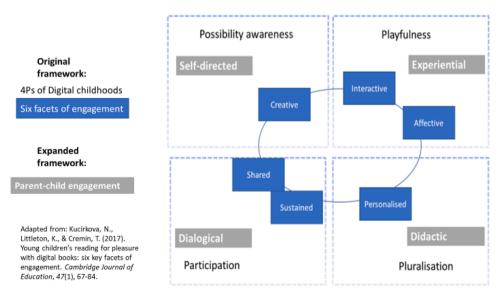

Fig. 1. Expanded framework of parent-child engagement with digital books.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.ijer.2021.101844.

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