Kucirkova, Natalia. "Extant Research with Personalized Books." *Digital Personalization in Early Childhood: Impact on Childhood*. London: Bloomsbury Academic, 2017. 99–112. *Bloomsbury Collections*. Web. 26 Apr. 2023. <<http://dx.doi.org/10.5040/9781474290838.ch-007>>.

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Extant Research with Personalized Books

This chapter presents a summary of research with digital personalized stories and paper-based personalized books produced for, or with, young children. According to the nomenclature outlined in Chapter 4, these books could be described as semi-personalized self-produced books, with fictional and autobiographical elements, and a narrative content. For brevity and simplicity, I refer to them in this chapter as personalized books, or PBs for short. These books were produced digitally using the Our Story app or a PC software programme called RealeBooks and were printed out in booklet format or used as digital personalized stories.

The personalized books correspond to the 5As framework as follows: in terms of the child's authorship, some books were created by the children's parents or by the researcher, with or without the children. The authenticity of the books' content varied as some stories followed the same story plot for all children. The choice of the aesthetical appearance of the books was determined by the technology used for the books' final production, which was either the Our Story app for the digital stories or the RealeWriter software for the printed books.

The summary in this chapter concerns studies conducted at home, in early years' classrooms as well as primary schools. I focus on the books' impact on children's language and literacy, motivation to learn as well as family dynamics at home. I review the studies in the chronological order in which they were conducted, starting with my master's studies, followed by doctoral, postdoctoral and current work.

Extant research with *paper*-based PBs

I have been interested in studying personalized books since my master's studies. For my master's thesis (Kucirkova, 2010), I wanted to examine whether and how personalization elements engage babies in sharing books with their parents at home. For children of young age, shared book reading is an important time to bond with their caregiver and enjoy an unhurried time together (see Kucirkova, Dale, & Sylva, 2016). Reading books with children from a young age has been linked to several positive learning outcomes, including children's vocabulary acquisition and long-term enjoyment of reading (Senechal & Cornell, 1993).

It would be difficult to expect a 12-month-old child to produce a book on his or her own. For young children (infants and toddlers), personalized books are typically produced by their parents or main caregivers. Therefore, for producing personalized books for these young children, a close collaboration with the children's parents is even more important than with older children. For research carried out as part of my master's studies (reported in Kucirkova, Messer, & Whitelock, 2013), I worked with seven parents from East Midlands, the United Kingdom, who positively responded to my invitation to create a book for their child. The ages of the children varied, in the study; the youngest child was 12 months old and the oldest was 33 months old. Parents were free to choose any pictures or text for their books. The only request they had to follow was that the book needed to be about their child and about something their child enjoyed doing. To better understand how children's enjoyment of personalized books compares to other books, I created similar non-personalized books. To do so, I took the text and images parents sent me about their child and 'depersonalized them', by replacing the child's name with a similar name of another child of the same gender. I also replaced the pictures of the child in the non-personalized books with a child of similar physique (eyes, skin colour, facial expression). I also made sure that other pictures and content available in the personalized was mirrored in the non-personalized book: in the non-personalized books, I replaced all photographs supplied by the parents with stock images with similar content and renamed the names of the child's favourite toys, places and friends. For example, if a parent decided to use a picture of their child with their favourite trainset photographed outside in the garden, I would find a picture of a child playing in a garden with a similar trainset. As such, the content was almost identical across the books, but in the non-personalized books it was not the child's own. The story plot of the personalized and non-personalized books was more or less the same. Also, the personalized and non-personalized books had the same format: they were printed in colour on an A4 paper, laminated and comb bound. To see children's response to these books in an environment they are familiar with, I visited parents and their children at home and asked them to read the personalized and non-personalized books with their child, together with the child's favourite book. The order of these three books was randomized across the seven parent-child pairs. The favourite book was a book the child chose herself or, if the child couldn't choose one during my visit, the parent chose one for them. I arranged for the personalized and non-personalized books to be printed and laminated, and all children (and their parents) saw their personalized and non-personalized books for the first time when I visited them.

The analysis focused on the babies' engagement during the reading session and enjoyment of the three books. Data were analysed using the FocusII software, which allowed for a precise and detailed examination of children's facial expressions, utterances, gestures and eye gaze. The study results revealed that although the personalized and non-personalized books were almost identical, the children were more engaged in the reading session when reading books which were personalized than those which contained no personal connection to them (Kucirkova, Messer, & Whitelock, 2012). In addition, there was a positive correlation between the children's and parents' positive engagement in the activity when reading the personalized books

(positive affect/engagement was measured as the frequency of shared smiles and laughs between the parent and child). Anecdotally, the parents told me that they have never seen their babies as engaged in a book-reading session as with the personalized books. All seven asked if they could keep the copies of their personalized books. In a follow-up telephone call a year later with one of the parents who participated in the study, one mother told me that her daughter still loved going through her personalized book.

Encouraged by these results, I was keen to examine how personalized books might engage slightly older children in book reading and support positive parent-child shared book reading interactions at home. With my developmental psychology hat on, I was interested in finding out whether such personalized books might not only engage the child, but also support the child's learning from the books. Given the well-documented link between book reading and vocabulary learning (see, for example, Hargrave & Senechal, 2000), it was of primary interest whether personalized books might positively contribute to children's word learning more and above than non-personalized books.

To investigate this possibility, I used a similar design to that of my master's study. However, this time, because there were more parents and children taking part in the study and because I was interested in a specific learning outcome, I needed to make the personalized books more comparable (rather than idiosyncratic for each child). I therefore provided the parents with a template for their children's personalized books. The template was essentially a story plot about a child who wakes up one morning to find out that he/she goes for a day trip with his/her parents, has a wonderful time and then returns home. I gave the parents short questionnaires asking them about the child's likes and dislikes, for example what food their children enjoyed for breakfast and what the names of their friends and favourite toys were. This personal information was then filled into the story template to create a personalized book for each child participating in the study. Children's personalized books were then matched with non-personalized books, in which I replaced the personal information with names and facts not related to the child. I also asked the parents to send me a few pictures of their children looking happy and not featuring other children. These pictures were inserted into the personalized books and were matched for quality and main protagonists for the non-personalized books. So, for example, if the personalized book had a picture of the child having fun on a slide, the non-personalized book would have a picture of a similar child having fun on a slide too. To facilitate the production of personalized and non-personalized books, I used the freely available software programme RealeBooks. RealeBooks was developed by Mark Condon, professor emeritus at the University of Louisville and the vice president of Unite for Literacy, and Professor Colin Harrison, emeritus professor of literacy studies at the University of Nottingham. The use of the programme ensured that all books (whether they were personalized or not) had the same format, size of the pictures and text and were easy to print out. The finished books were laminated and comb bound, so that they were sturdy and easy to handle.

In order to investigate whether children learn from reading their personalized books (and whether this learning is greater than learning from non-personalized

books), I designed an experiment in which each personalized book contained eight new words. This was matched with a non-personalized book, which also contained eight target words the child didn't know before. The target words were a mixture of verbs, nouns and adjectives and were real, low-frequency words adapted from the British Picture Vocabulary Scale. For instance, the personalized book for one child contained the word 'culinary' and the non-personalized book contained the target word 'copious'. The words were randomly distributed among the children and were tested for children's understanding of their definition, pictorial representation and emotional valence. To facilitate children's learning of these aspects of the words, the story plot (i.e. the story template that was the same for all books) contained some clues about each target word used in the book. For instance, if the child's target word was 'copious', there would be a short simplified definition of the word in the text (e.g. 'copious means a lot, a lot of food'). The clues were the same for all children and were linked to the target words; that is, they appeared in both the personalized and non-personalized conditions. The target words appeared several times in the book or were repeated to the children during the reading orally by the researcher, at least two times each word. To further maximize children's learning of all words, the words' meanings were explained to the child and/or were represented in the story through the story pictures.

Given that children learn new words better if they are repeated to them, all children were read the books on two occasions; that is, each personalized and each non-personalized book was read to the child twice. I brought the books to the preschool on the day of the study and after the study took them away, to avoid a potential bias of children having a prior or additional exposure to the books. To ensure that each child receives the same amount of support for each new word, there was a reading protocol followed by the researcher who read all the books to all children. The reading happened in a standardized way, at a given time in a quiet corner of a preschool. All interactions were filmed and evaluated for consistency of reading across the children and across the personalized/non-personalized conditions. This was to ensure that the reading was consistent and similar across the children, that is that, as much as possible, each child was exposed to both the personalized and non-personalized books with similar level of enthusiasm and body language on the part of the researcher.

The study analysis compared the number of words children learnt in the personalized versus non-personalized condition, with three levels of word learning: the pictorial recognition of the words (children had to choose the right picture depicting the target word from a choice of four pictures provided by British Picture Vocabulary Scale), the definition of the word (the children were verbally asked by the researcher) and the emotional valence of the words (children had to select a happy or a sad or a neutral face when they heard the target word). Children were tested with these three tests at three points: after the first reading session, just before the second reading session and immediately after the second reading session.

There were eighteen children in the study overall, with a mean age of 3 years and 10 months. The study findings showed that there was a main effect of condition

($F(1,17) = 23.54, p < .001, \eta^2 = .58$), a main effect of testing point ($F(1.39, 23.68) = 13.77, p < .001, \eta^2 = .45$) and a significant interaction between the two ($F(1.77, 30.05) = 14.04, p < .001, \eta^2 = .45$). Children's learning of the new words was higher (or stronger) for the personalized than non-personalized condition and gradually higher; that is, their knowledge of the new words was better after the second reading session (as could be expected, given the well-documented link between word learning and repetition see, e.g., Horst, Parsons & Bryan, 2011). For the picture and definition tests, there was a clear, statistically significant difference between personalized and non-personalized condition at the second and third testing point. For the emotional valence test, there was no significant difference at any of the three testing points. Full details of this study are reported in Kucirkova et al. (2014a). This study was relatively small in scale and its design largely experimental. Acknowledging the limited study power, this was the first study that rigorously controlled for the level of personalization in a child's book and directly compared it to non-personalized book in relation to a specific learning outcome. The results are encouraging because they show that seemingly small changes to a book design can have important effects on children's acquisition of new words.

Reflecting on the 5As and the studies reported so far, the autonomy and authorship were low or non-existent in the studies: the books were designed either by the parent or by the researcher, with the parent's help. The aesthetics of the books were based on some general knowledge of what children like to see in their books; they were not adjusted to each individual child's preferences. The story format was the same for all children participating in the studies, and the content (with the exception for my master's study) was also based on the same narrative for all children. Yet, despite these 'non-personalized elements', the children participating in the studies showed a positive attachment to their books: they wanted to keep them and re-read them over and over.

Having said that, some caution is in order in the interpretation of studies with personalized books. While we might note positive outcomes for one domain, it might be that for another domain personalized books are not helpful or even beneficial. In a follow-up to the Kucirkova, Messer & Sheehy (2014a) study, I led a study in which we examined children's verbal engagement during book reading of personalized and non-personalized books. In addition to the children taking part in the earlier study concerned with word acquisition, we recruited further seventeen children, with a total sample size of thirty-five. Their ages ranged from 17 to 56 months (mean age 36.94 months). The design of the study was the same as in the previous studies: all participating children received a personalized book (with personalized text and pictures based on information supplied by the children's parents) and a closely matched non-personalized book. In this study (which is available in full in Kucirkova, Messer, & Sheehy, 2014b), I examined children's spontaneous speech – a speech that the children produce without an adult's prompt – during the reading of the personalized and non-personalized books. Given the study focus on personalization, emphasis was placed on self-referential spontaneous speech – a speech in which children relate the events to them and their own lives. I noticed this tendency when watching the videos

of children participating in the word acquisition study and was intrigued to find out whether this was a systematic difference between personalized and non-personalized books.

Perhaps not surprisingly, we found that when children read personalized books, their spontaneous speech is, by and large, self-referential. This means that if children are given books which feature them as the main characters, they are keen to talk about what *they* experienced; they create their own short stories in relation to the pictures they see. They frequently mention the personal pronouns of 'me, my and I' and spontaneously start sharing autobiographical stories about what happened to them in the past. These results made me ponder the overall value of personalized books for young children's reading, language development and understanding of stories. It seemed to be the case that personalized books act as a good prompt to eliciting children reminiscing and talking about self. This could well be because of the presence of children's photographs in the personalized books. We know from other studies that the use of personal photographs is a powerful reminiscing technique frequently used in child therapy and psychotherapy (see, for example, work of Kaslow & Friedman, 1977 in relation to the use of family pictures). Thus, if personalized books encourage more reminiscing and children's spontaneous recollection of the past, then it might be that the use of personalized books is best suited for adult-supported reading sessions.

The other observation of interest is that personalized books strongly motivate children to speak. This is important because it shows that the children pay attention to the book (the story) and this attention could be harnessed as a learning mechanism. It could well be that the increased attention to the story (because of its personal character) was the reason why children learnt more new words from the personalized than non-personalized books. Whether the neural processes underlying personalization effects are due to increased familiarity or novelty (i.e. due to memory or attention effects) is to be established by developmental cognitive neuroscience experiments.

There is also an alternative explanation of the study results. Namely, we may ask whether personalized books disrupt the traditional learning benefits we associate with book reading. The purpose of reading books with children is not just to teach them new words. Book reading is also about sharing with children alternative realities and viewpoints, building empathy with the story characters and learning about wider, global issues. Put simply, books present us with worlds we have not experienced ourselves, with characters we don't know personally (unless we read an autobiographical novel of someone we happen to know). It is about discovering the connections between these unknown worlds and our own selves. Personalized books turn this idea on its head: they are about a specific child or about explicit personal connections. As we can see in the results of this study, such a personalization encourages self-interested talk and self-oriented speech. It encourages children to draw on their memory of a past experience and share it with others.

This is a concern overall, but especially so when children read personalized books on their own. Namely, it is well established that children don't learn from books only thanks to the text and the rich concepts embedded in the books, but through parent-child conversation around the text (Snow, 1983). If we know that personalized books foster self-oriented talk, then it is even more important to encourage parent-child

conversations around the books, so that children's experiences are understood and validated. Moreover, it is important that the reading of personalized books doesn't happen in isolation from other, non-personalized books, and that it is supported by talk around the book that extends children's experiences to wider issues. As I wrote elsewhere: 'Adults' role is essential in guiding children to understand that stories should show diversity, invite co-reading and the exchange of ideas' (Kucirkova, 2015, online).

The results of the spontaneous speech study, coupled with the lack of research data on parent-child interaction during the reading of personalized books and the rise of digital personalized books in young children's lives, have motivated my further work in this area. I was especially interested in *shared* reading of personalized books happening at home, between parents and children. In addition, I was keen to see whether children's authorship and autonomy in the books' creation might add value to the reading experience and shape of personalized books. I began my studies at a time when iPads and tablets were only beginning to emerge on the market. However, in 2011, iPads and Android tablets began to be more affordable and more available. These tools were the first widely available technologies that could be manipulated even by children of toddler age and that contained three technologies in one: a camera, a typing machine and an audio recorder. All three technologies are great tools for authoring stories. In 2011, there was no app on the market which would bring these tools together for the creation of children's own stories (personalized books). In response to my research interest and this market gap, the idea for the Our Story app emerged.

The Our Story app and digital personalized stories

I named Our Story 'our' story, because of the aim to encourage shared and collaborative authoring of stories. The app was first released on the market in 2011, with regular updates over the past few years. The app featured as the second best educational app in 2011 in App store rankings and was a finalist in the MK Digital Awards 2015. The success of an app is often indicated in the number of downloads, but these tell us little about how the app was actually used and the impact it has had on the users. The scale of the success of Our Story is indicated by the number of projects conducted by scholars across the world, who repurposed the app to suit the specific needs of the children they worked with. These are summarized in, for example, studies by Kumrai (2013), Sung and Siraj-Blatchford (2015) and McPake and Stephen (2016). Examples of Our Story's use include a Nottinghamshire Pupil Referral Unit and storytelling amongst children and parents in a Haringey community project; story-making in Taiwanese libraries; community-based projects conducted with children with special needs in schools in the United Kingdom, Japan, Spain and Slovakia, as well as people with dementia in the United Kingdom; exploring stories about sound in Manchester and Sheffield museums as part of the Sound Project; and teaching Gaelic vocabulary in preschools in Scotland. The website dedicated to Our Story is regularly updated with new projects as they emerge: <http://www.open.ac.uk/creet/main/projects/our-story/research-our-story>.

Our Story has three options to personalize a story: a pictorial, textual and audio option. There is no template for either of these three options. The users are free to take any pictures they like with the device camera, or they can download them from the Internet or from another device. The pictures can be photographs of people or photographs of drawings or anything the users wish to use for their books. There is no limit on the length of the audio recording or text. The design of the app is iconic and adjusted to young children's age. This was a deliberate design decision to enable young children's authorship. Finished stories can be printed out or shared digitally. Similar to the range of personalization options with paper-based books, the level of personalization varies and depends on the approach adopted for the books'/ stories' creation and use.

I investigated the learning potential of digital personalized stories created with Our Story in a number of studies, which is summarized in the next section.

Extant research on *digital* personalized stories

Supporting children's narrative skills

In 2014, I was approached by a teacher who worked in an early years setting in a deprived area of Buckinghamshire, England. The teacher was keen to support the children's language skills, particularly their ability to tell coherent stories. The teacher had seen the Our Story app and reached out to me via email asking whether we could design an intervention to support the children in their setting. The study was conceptualized as a design-based study, and is reported in full in Kucirkova, Messer and Sheehy (2017). Overall, thirty-three children, aged 3 to 5 years, of mixed socio-economic background, participated in the study. The majority of them were described by their teachers as having very limited language skills, with a lack of basic vocabulary and ability to maintain eye contact with the speaker. Twenty-two of the participating children were identified as having special education needs and qualified for extra teaching support.

During the study, the key teacher received an iPad2 with preloaded Our Story and was encouraged to use it to record children's stories, as well as to encourage children's own authorship of stories in multimedia. Children's narrative skills were assessed approximately one week before the intervention started and during the last week of the intervention, using an adapted version of High Point analysis (Peterson & McCabe, 1983) and the overall number of words children produced in their narratives. The findings indicated that before the intervention, children's personal narratives contained mostly orientation elements, followed by appendages and evaluations (i.e. children's stories gave the listener information about the participants in the story but not where they were, what actually happened to them and other contextual information crucial for a meaningful story). After six months of regular use of Our Story in the classroom, there was a considerable increase in children's inclusion of not only orienting but also evaluative and supplementary information in their narratives (the difference between the pre- and post-test summary scores was $t(30) = -2.158$, $p = 0.039$).

A caveat in interpreting these results is that unlike in the experimental studies reported earlier in this chapter, this study was a naturalistic study – I did not control the many contextual factors which may have influenced children's narrative abilities during the intervention phase (such as their teachers' support or the range of other activities available to them in the classroom). Therefore, when evaluating the effects and influences of the app, one needs to be aware that these were a combined effect of other activities happening in the classroom.

Supporting parent–child engagement in book reading at home

In 2013, I led a case study (Kucirkova et al., 2013) in which we examined the parent–child interaction when sharing a digital personalized book in fine detail. This was the first empirical study to look at a parent and child reading together a personalized book on an iPad. It was small-scale (only one pair of parent–child) but it offered important insights into the interaction patterns of a parent–child who share their own book in a naturalistic setting. We used a multimodal interactional analysis approach (Norris, 2004) to analyse the data. For researchers with a quantitative orientation, a brief explanation of this approach might be needed: multimodal interactional analysis approach is helpful in disentangling the rich set of influences at play in a given interaction and in allowing a detailed analysis of the parent's and child's embodied behaviour (i.e. their gestures, gaze and language). The multimodal interactional analysis approach proved very useful in this case as it enabled us to also consider the disembodied resources for meaning-making (such as the digital book the parent and child co-created, including the digital images embedded in the story, as well as the physical presence of the iPad between the parent and child on their lap and factors such as where do they place the iPad and how close do they sit together with or without the iPad). Based on the findings, we concluded that

The *Our Story* app exposed the mother-child dyad to a new experience of story-sharing which they responded to by orchestrating a complex interplay of communication resources. These resources were part of the app as well as of the parent's and child's own resources for meaning-making. (...) Despite a rather complex set of interaction possibilities, there was evidence of the pair achieving a way of harmonising events separated in time and space, and bringing them into a shared story space. In this respect, the observed interaction achieved a coherence which is typical of happy moments during story sharing or reminiscing (e.g. Haden et al., 1996). (p. 120)

In other words, we observed a very positive parent–child interaction with the digital personalized story, an interaction that we likened to an experience of art and one in which the digital, multimedia format of personalized stories positively contributed to the parent–child enjoyment of the reading activity. Unlike the concern in the literature and practice at that time, our study did not find evidence for digital technologies disrupting parent–child interaction during book reading. On the contrary, the digital personalized story encouraged a moment of closeness and attunement between the

parent and her daughter, and hybridized a reminiscing and reading session into a new kind of parent–child home interaction.

While in this case study, the story was created by the mother for her child, in a follow-up case study with two parent–child pairs sharing digital personalized books (Kucirkova, Sheehy, & Messer, 2015), the books were co-authored by the children too. The theoretical orientation adopted for this study was that of Vygotsky's social constructivism, mostly because of the focus on parents and their role in acting as mediators of children's learning. A close analysis of parent–child talk provided an insight into the child's leading role in the interactions and the app's facilitation of child's authorship and autonomy. Indeed, the possibility to easily embed pictures, text and audio recordings meant that the children's zone of proximal development became expanded to what Professors Karen Littleton and Neil Mercer termed as 'an intermental development zone' (IDZ; Mercer, 2000; Mercer & Littleton, 2007). IDZ is a zone where both the child and parent act as novices and teachers and where they need to jointly negotiate their understanding. When reflecting on the study findings, we wrote that 'in such open-ended, collaborative and creative contexts, a shared communicative space is created in which both the adult and child negotiate their positions in the activity and the division of learner and teacher becomes blurred' (Kucirkova et al., 2015, p. 9). The final product of the interaction (the digital personalized story) and the self-authoring process preceding its production (e.g. taking pictures, recording voice-overs, jointly typing text to go with the story) were part of a larger, 'trialogical' space. This was different from the earlier case study in which the exchange was in the form of a two-way book–child or mother–child back-and-forth process of reading. The finished story could be emailed within seconds to another family member or friend and its production could incorporate others' pictures or contributions (e.g. by accessing the Internet and downloading them into the story). Such a 'dynamic nature of co-construction of shared objects of a unique personal value' (p. 10) has resonance with Hakkarainen and Paavola (2009) and their trialogical approach to learning.

It is worth remembering that in both studies (Kucirkova et al., 2013; Kucirkova et al., 2015), the parent–child interaction was not around any personalized books, but around *digital* personalized books. Unlike printed books, the digital medium is easily editable; it affords an easy and seamless generation of multimedia personalized content. This is different from the personalized books that were used by the seven parents used in my master's study: the pictures and text in these books were fixed; they could not be instantly updated in the moment of reading. The parents had decided on the pictures and text, and, once printed, the children could either like or dislike them, but they could not change them as easily as with the digital stories created on iPads.

In spite of, or perhaps because of, these obvious differences between digital and non-digital resources, I have not conducted a study in which I would directly compare the digital versus paper-based version of a personalized book. This is a deliberate choice: I do not consider paper-based and digital books as two opposing formats. This may need some explanation in light of the long tradition of studies that have directly compared parent–child interaction with digital as opposed to non-digital books (see, for example, the informative studies conducted by Ofra Korat or Adriana Bus).

Following the research consensus reached at the international conference on children's reading on screen, organized by Professor Susan Rvachew (McGill University) in 2015, the most efficient way of comparing the different kinds of books children read is to compare them according to the books' *features*, rather than the format the books appear in. With many books today, including those produced with the Our Story app, the same story can appear in both printed and digital formats. The way in which the two formats differ is a range of features which need to be named and examined in their own right. Individual features need to be narrowly defined; for example, 'interactivity' is displayed differently in printed and digital formats. Personalization is a feature that appears in both formats. In addition, there are other five features, which I theorized in full, together with Professors Teresa Cremin and Karen Littleton (see Kucirkova, Littleton, & Cremin, 2016). These six features are personalization, affection, interactivity, creativity, shared and sustained engagement. These six features provide a useful comparison metric for researchers interested in comparing the effects of new and older reading formats in relation to reading for pleasure.

The research reported so far has focused on personalized books that support children's enjoyment of stories and narratives, that is, on the kind of reading that happens as a voluntary activity and is in the literature referred to as voluntary reading or reading for pleasure. The texts of personalized books we investigated were based on story plots, which were fictional or autobiographical, but not factual. They were books that were read in children's homes or after-school clubs, not as part of the standard curriculum. The Section 'Supporting Children's Learning in Primary Schools' complements this focus with a different scope: I describe studies in which personalized books were created by children in the classroom, following a semi-autobiographical and semi-standardized content.

Supporting children's learning in primary schools

This section summarizes a study conducted in 2014 in a lower primary school in England that was situated in an affluent, middle-class area. The study brief was developed in conversation with Professor Messer and Professor Teresa Cremin, who, like me, were interested in the learning potential of digital personalized books. Professor Cremin was mostly interested in the potential of personalized books to support children's reading for pleasure, while Professor Messer was interested in the ways personalized books could support children's writing development. I was interested in seeing whether the engagement and positive attitude towards book reading that I had noted in studies conducted in the home environment could be supported and sustained in the school environment, and with slightly older children.

The study protocol left the choice of the books' use entirely up to the teachers: we wanted to hear teachers' ideas for possible uses of personalized books/stories in their own contexts; we did not want to prescribe or suggest specific uses for the classrooms. Such an approach is aligned with the community-based approach, which honours the knowledge and expertise of all community members – who, in this case, were the teachers. We did not constrain the teachers in any way and let them use digital personalized stories for a school term. To facilitate the production of the personalized

books, I showed the teachers the Our Story app and explained how it could be used to create personalized books. The school had already invested in a number of iPads, so the teachers could use the Our Story app on the school devices or take it home and try out before using in the class. The study evaluation methods were based on researchers' observations of classroom practice, researcher's and teachers' documentation of impressions, and interviews with teachers, the head teacher and the children. The results of this study are detailed in a 'Minibook' commissioned by the United Kingdom Literacy Association (see Kucirkova, 2014). The Minibook illustrates the creative ways in which the teachers used digital personalized stories to enrich the school curriculum, as well as to support communication between school and home. The book outlines the details of tablet and computer applications that teachers can use if they wish to personalize classic stories or encourage children's authorship in the classroom. Here, I return to the examples from the English, history and math lessons I detailed in this book, to illustrate the learning potential digital personalized books can have in a primary school. Before I outline these examples, I should caution the reader that the school was, and still is, an exceptional school, with outstanding members of staff and consistently high results in national rankings. The teachers' positive attitude towards trying out new things out and innovating their practice is exceptional. It may therefore be that the examples presented here are 'ideal' examples rather than typical examples of using digital personalized books in schools. Nevertheless, they can provide some hints at the practical possibilities and usefulness of digital personalized schools for learning purposes.

The first example shows that personalized books can creatively support children's literacy experiences and also enrich history classes. A Year 4 teacher who took part in our study had used digital personalized stories to teach children about Roald Dahl's life. The teacher inserted pictures and facts from Roald Dahl's life into the Our Story app and encouraged children to complement these pictures with their own response to Dahl's books. This was a great way of combining the various multimedia possibilities available through iPads. Children could add their own texts but also voice-overs and some authentic music recordings. Children worked in groups and each group was asked to add their own 'personal touch' to one page of the collectively constructed book about Roald Dahl. When I observed the activity, I noticed that children had great fun personalizing specific dimensions of the book: some imitated Roald Dahl's voice, while others borrowed music instruments from the adjacent classroom so that they can add some authentic music tones. Other children searched for Roald Dahl's biography online to be able to add some more details to the written biography provided by the teacher.

The fact that each group could add a detail to one big digital book meant that each group felt proud of owning a part of the book. At the same time, the students needed to blend their creation with the other parts of the book to avoid repetition and ensure story coherence. The personalized dimension was thus used to enrich a given content, to increase children's motivation to do so and to recognize possible personal connection between the writer's life and their own lives. For a lesson that can be simply focused on regurgitating facts and data about a famous author, the

teacher used digital personalized stories to promote children's active engagement in the subject and help develop a broader historical perspective.

Personalized books were in this school also used in mathematics lessons. In one session in the Foundation classroom, the teacher used personalized digital stories in combination with basic counting and the 'grow your own beanstalk' task. The teacher first asked the children to set the growing stages of a beanstalk in the right sequence. Children had to put numbers against individual images of the growing beanstalk and audio-record a description of how the beanstalk grew, using mathematics vocabulary of more, less, greater or smaller. These descriptions could be typed text underneath the photographs or voice-overs. Children enjoyed the opportunity to add their own recordings, in addition to their own short sentences and arrangement of the pictures. In addition to practising their digital competences with touchscreens, they practised their authoring skills and maths skills. Moreover, the teacher connected the activity to the Jack and the Beanstalk story, thus enriching the session with concepts discussed during the English lesson and providing a cross-curricular link. The activity enabled the children to see the importance of their own narratives in relation to an old popular story and make a personal connection to the abstract world of numbers.

The last example I provide here is from a Year 2 English lesson, in which the teacher had the ingenious idea of using personalized stories instead of the traditional activity of diary writing. This teacher took the iPad with *Our Story* home and crated his own diary as an example to inspire the children's writing. The teacher's diary entry was about a trip to the Harry Potter studios, featuring pictures from the journey to the studios, then actual visit and returning home. The teacher shared his digital diary with the children who loved the fact that they could have a glimpse into the teacher's private life. The children were keen to share their own stories and carefully chose pictures that would illustrate their typical school day. During the classroom activity, the children needed to decide which key events they wanted to focus on for their diary entry, which pictures to take and how to enrich these pictures with audio and text. They collaborated on editing the text as they went along and supplemented it with short audio-recordings. Their final digital multimedia diary entries were shared at a classroom assembly. In this way, the children had an opportunity to blend their personal and shared school lives, to merge their lived and virtual/digital experiences and autobiographical narratives with close attention paid to correct grammar and diary structures (such as the use of first person and use of past tense).

Taken together, the examples from this school (and other examples outlined in the Minibook) illustrate the potential of personalization to positively affect children's learning through story authorship, and to motivate them to take part in traditional school activities. In all instances, the teacher's skilful use of the app together with the curriculum resources was the key to the successful interaction. Too much of personalization would mean that children are interested and motivated but they do not necessarily learn a lot of new material because they would be too focused on their own content. Conversely, too much of standardized and non-personalized content would mean that children are not motivated to learn – they focus less and consequently learn little. This is a delicate tension that is not easy to master and will be revisited theoretically in the final chapter.

Summary

This chapter provides a summary of studies on personalized books that I have conducted together with my colleagues between 2011 and 2016. The books did not always build on the child's authorship or aesthetic preference but the children showed engagement and emotional attachment to these books, giving rise to some positive learning outcomes. Thus, the studies demonstrate that for these outcome measures and in these contexts, personalization does not necessarily need to involve all 5As for a positive outcome to be achieved.

Collectively, the studies illustrate how educational researchers might go about asking *what is at the core of the personalization effect* and disentangling the elements that contribute to the potentially positive effects of personalization. Carefully designed experimental studies can help us ascertain the effect of personally relevant (or personally meaningful) aspects as opposed to non-personalized information. Detailed case studies can illuminate the complex set of relationships between personalization and adult-child interaction in home and school contexts.

Overall, the research summarized in this chapter suggests that in a supporting context personalized books can positively impact on children's language development, parent-child exchanges during shared book reading at home, children's digital literacy and their engagement in school activities across subjects and year groups. For younger children, there was a heightened focus on self in their spontaneous speech when reading personalized books, which warrants a caution about overly or exclusively personalized reading environments. In addition to these important learning outcomes, personalized books can act as effective tools to support children's creative skills – as outlined in the next chapter.