

The domestication of touchscreen technologies in families with young children

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Introduction

Over the last two decades there has been a wealth of studies on older children's use of technologies generally and mobile phones and the internet more specifically. But there has also been a separate, smaller literature on pre-school children's experience of ICTs. Touchscreen technologies, principally but not only the tablet and smartphone, have an interface that has now made these ICTs much more physically accessible to this age group (Neumann and Neumann, 2014). Hence, this generated considerable research interest on their potential role in educational setting (Stephen and Edwards, 2018), and more recently in the home.

While research on parents' and younger children's interaction in relation to technologies is often discussed in terms of children's (especially cognitive) development, it can equally well be framed in terms of a domestication analysis of ICTs. This framework examines the processes by which ICTs find a place in people's routines, sometimes in households generally (Silverstone et al., 1992). Most studies using this domestication approach have focused on various adults, but some, including the first empirical work in this field (Hirsch, 1992) have taken families as objects of studies, including children. However, these were mostly older children and so there is scope for asking what a domestication analysis might reveal about the dynamics of families with younger children.

This chapter explores how very young, preschool children—aged 0–5 years old—encounter and experience ICTs and, in particular, how parents of these young children try to manage their use of these technologies. It reports the first findings from the Australia-UK *Toddlers and Tablets* project, examining the processes by which these technologies are domesticated in the lives of young children.

Literature review

There is now a body of research on the more general ICT use of pre-school children aged 0–5 in the home (e.g. Plowman et al., 2010a; Rideout, 2011; McPake et al., 2012; Plowman, 2015; see Holloway et al. 2013 for a review). More recently, a somewhat diverse research literature on young children's use of touchscreen technologies in that setting has emerged. Methodologically, this includes surveys of what activities these very young children do with these technologies (Rideout, 2013; Nevski & Siibak, 2016; Pempeck & McDaniel, 2016; Marsh et al., 2015, 2018) as well as surveys examining predictors of their use (Lauricella et al., 2015; Nevski & Siibak, 2016). There have been ethnographic/ observational /video studies looking at child-parent interactions around these technologies (Danby et al., 2013; Chaudron, 2015; Neumann &

Neumann, 2016; Marsh et al., 2018). Interviews have also been conducted, more so with parents (e.g. Livingstone et al., 2014).

As regards the theoretical frameworks used, one Human-Computer Interface study examined what children of different ages are capable of doing (Hourcade, 2015), and a media studies piece looked at how parents represent children when posting videos of their tablet use (Nansen & Jayamene, 2016). However, reflecting the learning agenda emphasis in research on ICTs more generally (Stephen and Edwards, 2018), one key research interest when looking at touchscreens is children's cognitive development, whether framed in terms of literacy Neumann (2014, 2018) and Neumann & Neumann (2014, 2016, 2017) or creativity (Marsh et al., 2018) and how parents support such learning processes.

To provide a wider context, Scottish researchers Plowman et al. (2010a, 2010c) noted a range of moral panics about ICTs more generally that have been expressed in the media, among which are concerns about the negative effects on children's social development as children interact more with technology and less with other people, the addictive nature of such technologies, the inauthentic experience of the digital world compared to the physical one, and the how technology fails to stir children's imagination. In contrast to the fear about technology dominating children's lives implicit in some of this negative coverage, these and other researchers (Chaudron, 2015; Livingstone et al., 2014) observe that in practice ICTs are usually not so central to children's routines but are used alongside engagement in other activities.

As regards isolated use, these Scottish researchers and other have observed that parents do sometimes use ICTs as electronic babysitters, occupying young children when parents need their 'free' moments, including those times to deal with non-childcare tasks (Plowman et al., 2008, 2010b, 2010c; Livingstone et al., 2014; for a more extreme example, Bar Lev et al., 2018). However, a UK survey of 0–5 year olds noted that children were far more likely to be using a tablet with a parent (57%) than alone 35% (Marsh et al., 2015). Based on their various studies, the Scottish researchers also found limited evidence of this isolation (Plowman et al., 2010c). In fact, Stephen et al. (2013) showed the variety of ways in which parents interacted with children, scaffolding their children's experiences in a similar way to the actions of staff in pre-school.

Turning to the domestication framework, this approach often looks at how ICTs are introduced into people's lives and how experience changes over time, trying to make sense of how and why ICTs are used, and what role they play in everyday life (for a review of domestication studies more generally, see Haddon, 2016). This can also include understanding why that role might be limited, sometimes intentionally constrained, or indeed the technologies could be rejected. Research in this tradition often aims to understand this domestication process by appreciating the social context¹ into which these technologies enter, how ICTs fit into rest of people's daily routines, and how patterns of use emerge from their particular circumstances.

Some domestication studies that have focused on families as the unit of analysis rather than children, even if older children were present in empirical studies (Lally, 2002; Ward, 2005). Two more recent studies applied a domestication analysis to smartphone use by older children focusing respectively on parental mediation (Mascheroni, 2014) and how children experienced social constraints on the use of the technology (Haddon, 2018). However, the age of the children makes a difference in various senses, for example, in the way that rational negotiation between

parents and younger children was made problematic by the children's limited cognitive abilities (López-de-Ayala-López and Haddon, 2018). In the case of young children, tablets and smartphones are already present in the home, so the question becomes one of how these technologies find a place in these children's lives. As will become clearer, here it is important to understand in particular the motivations of parents and the challenges they face, since how parents approach their children's use of those technologies is so important at this life stage for shaping the children's experience of these technologies².

While much of the early childhood literature focuses on the pedagogical benefits of tablets in particular, it has been noted that there are in fact a variety of diverse reasons why touchscreen technologies first entered children's lives (Marsh et al, 2018). Hence, the domestication analysis starts by exploring how and why young children first encountered these technologies. The influence of parental values on their approach to mediation, parents' approach to parenting in general, and their evaluations of pros and cons of these particular technologies, have been reported in more detail elsewhere (Haddon and Holloway, 2018). In contrast, in this chapter the focus is more on the daily lives of parents and children, especially their diverse interactions with each other that relate to touchscreen technologies—a dimension of frequent interest in domestication analysis. The chapter next deals with certain particular interactions, exploring in a little more depth a practice identified in the literature: how and why parents use touchscreens to occupy their children, but also asking how they feel about this. This section also examines cases where situations unplanned by parents lead to unanticipated roles for these technologies. This is followed by a focus on interactions where parents choose to engage with their children's learning through the use of touchscreens, but noting how this can entail processes over and above specifically supporting or scaffolding their children's technology use. Lastly, the chapter looks at the type of interactions where parents attempt to manage, specifically to control, the place of these ICTs in their children's lives, indicating why parents can be in a stronger position to do this in the case of these very young, as opposed to older, children.

The Toddlers and Tablets project

Toddlers and Tablets was an Australian-UK project funded by the Australian Research Council's Discovery Programme. This multi-method study looked both at children's practices with touchscreen technologies and the perspectives and actions of key actors in their lives, principally parents, but also grandparents and pre-school staff. The core research involved case studies of families and although these were conducted in both countries this chapter reports specifically on the UK data.

The family studies each entailed an initial interview with one or both parents, depending on the (often busy) timetables of the participants. The parents were then supplied with a videocamera and asked to record some examples of their children's use of tablets and smartphones, with suggestions (e.g. videoing children's use, if they had difficulties, if they received help). During a second visit to pick up the videocamera there was a chance for the researcher to observe the child using the technology and ask further questions. In the case of the UK study this session was also video-recorded. Compared to studies of older children it is often more difficult to hear the child's voice, because even the 5-year-olds are less articulate. In practice, there was more reliance on the parent's accounts.

There was a total of nine UK families (plus a pilot study), recruited through diverse sources (e.g. work places, social networks, nurseries) but mainly involving snowballing. For example, nursery staff were asked if they could pass on details of our research to the parents of young children. All but one of the families lived in London, the exception living in the commuter belt around London. While the project aspired to produce a range of family circumstances there was a preponderance of middle-class families—only two were from a working-class background, one of which was a lone parent. Gender was balanced, with 5 boys and 5 girls aged 0–5. There were three 0–1 year olds, three 2–3 year olds and four 4–5 year olds. Older siblings were present in some families, but only one family had two children in the 0–5 age range of the project. The cosmopolitan nature of the country, and London in particular, was reflected in the fact that quite a few of the parents had been born in other countries: the Tosettis were Italian, Klara Brown was a Slovak, the Jameson parents were Australian and French and the Mansi parents were Canadian-Indian and Russian.

The families filled in consent forms and their identities were anonymised. The analysis of the interviews and video material was in part informed by reacting to the literature on young children outlined above. But it was also based on approaches found in other domestication studies—e.g. how and why touchscreens first entered children’s lives, identifying various forms of interaction between parent and children relating to the technologies. Emerging themes, including summaries and quotes, were organised into different sections forming the basis for a variety of publications on the different facets of parents’ approaches to and young children’s experiences of touchscreen technologies.

Findings

Initial encounters with touchscreens

Even though the children were still young, some of the parents found it difficult to remember the details of how their children first encountered touchscreen technologies. But it is clear that routes varied, and were not necessarily simply for encouraging educational literacy. Sometimes there were specific occasions when the parents first decided they needed to occupy the child such as on flights and a long car journeys or when preparing the baby’s meals. But there were also motivations for introducing the child to touchscreen technologies based on parents’ evaluations of perceived benefits. A number of the families thought it was useful for their children to interact with relatives, and temporarily absent parents, using the videochat facility on devices, such as Facetime and Skype (noted also in previous research by McClure et al., 2015). Linda Palmer had first downloaded nursery rhymes onto the tablet so she and daughter Leela could sing them together. And Mirabella Tosetti had been showing son Leopoldo things on the tablet since he was a few months old because she thought it was easier for him relate to moving images and sounds rather than pictures in books. Although that would be an example of seeing educational potential, Mirabella also found what she considered to be a ‘good app’ that meant her son had to turn off the lights to make cartoon animals go to bed. This became part of his own going-to-bed ritual.

Whatever parents’ intended approach to parenting, the child had agency in this process. For example, children with older siblings had grown up seeing their siblings use the technologies and hence wanted to access the devices themselves. And there were sometimes factors specific to the

child that affected parents' decision. Daughter Ellen Brent had a disorder that affected her language learning abilities, so mother Elisabeth had, since Ellen was very young, left a TV channel on all day that showed someone signing. Elisabeth hoped her daughter would pick this up through such exposure. Later Elisabeth downloaded an assisted and augmented communication app onto the smartphone and then onto a tablet to provide Ellen with another way to communicate.

Occupying and distracting children with touchscreens

Even if touchscreens were not originally introduced into children's lives to occupy them, eventually many parents at some stage used them for that purpose. The most common example given was letting the children use the technologies on long journeys to stop them getting bored, but also to keep them quiet and so provide some peace for the parents. But touchscreens could also fulfil this role on shorter outings. Here there is a new departure from the previous studies reviewed because either the child's tablet or smartphone were carried outside the home for this purpose, or parents let the children use their own, personal devices when outdoors. For example, the Mansis carried an old smartphone in the pram for one-year-old Sergei to use. Trish Greenfield was willing to let one-year-old Andrew play with her own smartphone when they were out of the home. Sometimes the aim was to occupy children at particular times or in particular spaces, such as when a relative was visiting the home, when at the hairdresser's or the doctor's. Stella Kramer even downloaded extra apps in preparation for some of these occasions. And as Elisabeth Brent pointed out, whereas she might give her older children something to read to occupy them, since Ellen could not yet read letting her use the tablet was the alternative.

It is worth adding, however, that parents had differing views about resorting to these technologies for this purpose at times and spaces that had a specific symbolic meaning. The Spinners took the tablet with them when they occasionally went to a restaurant, 'in case of an emergency'—i.e. if daughter Imelda suddenly wanted to go home. But even they stressed that usually Imelda would be offered an alternative first, like something to colour in, where the tablet was the back up. Various comments like this remind us that restaurants are spaces when parents can feel that they are publicly on show to others, and being judged by them:

Stella Kramer: "I just thought that it would be better to try and teach the children as early as possible how to behave in a restaurant rather than risk having a child who can only entertain themselves with a phone or a tablet...[adding later in the interview] ...it is a pet hate when I see other people who just fall back on it like as the quick and easy option to entertain a child and I didn't want to fall into that habit."

There were other times when it was the child's situation that prompted parents to provide a touchscreen technology as a distraction—when it was not just an electronic babysitter, but a means to cope with a problem. For example, when Sergei was upset or ill Rohan and Nadia Mansi sometimes allowed their son to play on the tablet. Leopoldo Tosetti sometimes had nightmares and while still semi-asleep looking at pictures of the family on the smartphone was a way to calm him down. Simon Brown had a genetic disorder that meant he did not want to eat.

So as part of the major effort at mealtimes the Browns found it was useful to let Simon watch the tablet since it distracted their child while they fed him. Similarly, Ellen Brent suffered from constipation, so Elisabeth let her watch the tablet once again as a distraction while she gave Ellen some medicine for this condition hidden in fruit puree. In fact, Elisabeth was happy to let Ellen take the tablet to the toilet because “as long as she’s got that with her she’ll sit there quite happily and not try and get off”.

These examples often entailed discovering a use for the devices. The researcher had early in the interviews asked parents to remember what type of approach to parenting they had originally planned. While they might describe some parenting style, it is clear that usually they had not anticipated the issues discussed in this section. Sometimes parents felt guilt, or at least ambiguity, specifically when occupying children with technologies (in some social situations more than others). But it was nevertheless recognised as being a ‘practical’ decision at times to allow parents to carry out other activities while coping with the presence of (potentially demanding) children. Meanwhile, using the touchscreens as distractions were part of the parents’ solutions to problems faced by the child.

Parents engaging with children’s touchscreen use

It is easy to see why the case of occupying children with ICTs can feed into those concerns about children being isolated with technology rather than interacting with people. However, it is worth noting that even when children are doing something alone with the screen, parents (and siblings) can check up on them intermittently, as was also noted in Marsh et al, 2015. Indeed, the next section shows how this happens often specifically because parental help is requested.

In addition, and in contrast to the ‘isolated with technology’ fear, many of these parents at various points chose to use the technology as a chance to engage with their children. In fact, they did so in the same way as they might talk to them about a book or about any non-technological activity in which the child was involved. Just as in the research by Stephen et al. (2013) and Neumann and Neumann (2016), this could mean suggesting what the children could do next when using an app, explaining why some tactic in a game was not working, asking about the decisions the children made when trying to solve a problem or asking children what³ they thought was happening in a storyline (i.e. getting them to articulate their perceptions and decisions), and congratulating the children when they were successful in the apps. But beyond this scaffolding of children’s use, there were also many instances of parents going beyond the task in the app to ask tangential questions that came to mind. In other words, playing with technology could be a springboard to interaction where what was happening on the screen provided the stimulus for more general parental involvement with their children.

Although this was a predominantly middle-class sample, with many mothers based at home part-time or full-time, these interactions occurred at some points in nearly all the families. Sometimes, from the child’s perspective, it seemed that the children appreciated that interaction with the parent as well as, or indeed as much as, the interaction with the technology.

Parents' management of their children's use of touchscreens

The last form of interaction to consider is parents' efforts to control their children's use of touchscreens. To put this into context, the amount of control that parents wanted to exercise varied. The Browns observed that they did not restrict Simon much—they let him use the tablet whenever he asked for it. The Tosettis were also happy for Leopoldo to use the tablet anytime. This did not mean that the children who were granted such access actually used the technologies often. For instance, Imelda Spinner went through phases when she did not use the tablet at all, and others when she did. For some, like Leela Palmer, use was more seasonal, in the winter when there was less chance to go out. In general, for a number of parents the main restriction was not on the total time spent using devices but it was that the children should not use these digital technologies in the evening when the parents wanted the children to calm down before sleeping.

Even though some parents observed that it was occasionally difficult to get the children to put the technologies away, that they could get a bit grumpy, on the whole managing their children's use was not so much of an issue. This is because there are various factors that differentiate the engagement of younger children with these technologies from that of older children. One is that these younger children would often forget about the technologies if they were not visible. Hence, sometimes parent simply put the devices out of sight. This was even easier when young children with limited attention spans would move between these technologies and other toys. The relatively fixed structure of younger children's routines was also a factor. In the evening there were often winding-down-for-bed routines (e.g. baths) so the children did not really have time then to think about technologies. Either because of going to some pre-school facilities (nurseries, Toddlers groups) or because mothers especially took them out or engaged in activities with them in the home, there were many occasions when they children were (happily) doing something else rather than using tablets or smartphones.

These young children, even the 5-year-olds, were also to varying degrees more dependent on their parents when trying to use the technologies compared to older children (also noted in Livingstone et al, 2014; Marsh et al, 2015). This again made parental management easier. The youngest among them could not engage digitally at all unless the parents set things up, reminded the children how to navigate or explained the purpose of an app and what the children were expected to do in relation to any one screen. Even then, the children, including more skilled ones, regularly ran into problems (as was especially clear in the videos of children playing with tablets and smartphones) where they needed the parents to sort things out. Examples included when the children could not understand the written instructions because they could not read, or when they accidentally got lost and could not navigate back to the page they wanted, when an advert came up that they could not remove, when a password was needed or when the children needed advice about where to touch the screen, or how heavily to touch it. Hence, not only did parents in general often keep an eye on what the children were doing, as well as engage with them intermittently, but they were often actually summoned to help out.

Conclusion

There is always scope for additional qualitative studies to provide more insights into the material covered here, providing more examples, identifying more processes, perhaps finding more to say

on the difficulties that parents can face when trying to manage their children's technologies. Meanwhile quantitative studies on these topics could provide a better sense of their prevalence: for example, how often and when parents use touchscreen technologies to occupy children (as opposed to times when children choose independently to use them). Nonetheless, even this small-scale study can help to sensitise us to certain issues.

Since much of the literature on young children is interested in processes supporting cognitive development—whether through play and creativity or literacy—one first contribution was to explore some of the diverse reasons for introducing children to touchscreen technologies, apart from educational ones. Often in domestication studies, ICTs find a variety of routes into people's lives and in this study it is clear that the case of young children is no exception. Sometimes it is not even the parent who initiates the process, but it was the younger children copying others. At other times, the parents are reacting to a situation. And while parents may think a particular app is good for the child, this is not only because of literacy considerations—for instance, it might help the child to get into routines.

Although previous studies mention parents occupying children with technologies, this has not previously been explored in any depth. Since domestication analysis does not have a particular developmental focus, it has a potentially equal interest in how parents manage the non-parental aspects of their lives, when they are not interacting with the child. This study shows how wider societal discourses about good parenting can also make them limit this occupying 'use' of the technology or make parents feel guilty about the practice. Meanwhile, the (unanticipated) use of technology to distract children is using it as part of solutions to ameliorate or work around problems separate from the cognitive development agenda.

The section on parents interacting around technology shares more common territory with many previous studies of young children. Some of the latter play down differences between the digital and non-digital domains of children's lives, noting how the children move between or combine them (e.g. Marsh et al., 2018). In the *Toddlers and Tablets* study there were examples of how parents' scaffolding of technology use is not so different from their interactions with children relating to non-technological experiences such as playing with things or looking at books. Indeed, conversations with children about touchscreens can turn into conversations about other topics. This provides a less techno-centric appreciation of what is happening.

As regards managing and monitoring children's use of the technology, the third section of this chapter explored how parents of young children are able to mediate technology use, reflecting the limited capabilities of young children and their routines. This section also reminds us (as was clear in Marsh et al.'s (2015) list of what children of different ages cannot do) that while touchscreen technologies may provide an easier interface to use than the PC's mouse and keyboard, it by no means follows that all barriers to young children's use disappeared.

Finally, the domestication approach more generally allows some reflection on the specific agency of both young children and their parents. Although this theme was not developed so much, the children obviously have agency in terms of what they want to do, what interests them, who and what they copy. But that agency is also present in the summoning of parental help and, in a different form, through children's problems that require parents to find solutions. Compared with the case of older children, there are various ways in which these parents clearly have considerable

influence on when, how and why children first experience touchscreen technologies and how their use by young children is subsequently mediated.

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Notes

¹ Although not a domestication study, research on young children that refers to the 'cultural ecology' of families captures the idea that we need to be attentive to this context (Plowman and Stevenson, 2013).

² The different type of domestication analysis of younger and older children, using the Toddlers and Tablets finding as one case study, is explored more systematically in Haddon (in press).

³ For a more detailed examination of these scaffolding processes from the *Toddlers and Tablets* project, see Holloway et al., 2018.