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Post no photos, leave no trace: Children's digital footprint management strategies

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Abstract

Given that today's children are prolific users of the internet, concern has been raised about the future impact of the digital footprints they are currently generating. Here we report on the *Best Footprint Forward* project which utilised focus groups to investigate the digital footprint awareness of thirty-three children (ranging in age from 10 to 12 years old) from three primary schools in regional Australia. The children were very aware of their digital footprints and cyber safety but had little awareness of the positive potential of digital footprints. Instead they exercised their agency through the use of strategies to minimise their digital footprint. We offer an alternative perspective to the dominant discourse that insists that a digital footprint is primarily a liability and seek to counter the positioning of children as naïve, passive consumers of digital culture. We conclude that 10-12 years old is an appropriate age to begin to educate for positive digital footprint curation as this would build on children's demonstrated knowledge of cyber safety and supplement their existing digital footprint management strategies with beneficial alternatives.

Keywords: Agency, children, curation, cyber safety, digital footprints, social media

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Introduction

With the growing utility and ubiquity of online communication, digital footprints are playing an increasing role in people's life opportunities (Black and Johnson, 2010). Digital footprint refers to the information and data that people generate, through purposive action or passive recording, when they go online (Thatcher, 2014). University admissions and employers are increasingly using digital footprints as a means of verifying identity and perceived suitability of candidates for positions within organisations (Benson and Filippaios, 2010). A lack of digital footprint can be as damaging as one badly managed. Given that today's children are prolific users of the internet, (Livingstone et al., 2011) concern has been raised about the types of digital footprint that children are generating and what impact this could have on their future (Wakefield, 2014).

This paper reports on the *Best Footprint Forward* project which utilised focus groups to investigate the digital footprint awareness of thirty-three children from three primary schools in regional New South Wales [NSW], Australia. While the overall aims of the larger project were to get children's, educator and parental perspectives on the issue of online identity and safety, this paper reports on the findings of two of the project's research questions: (1) How do children understand digital footprint, and (2) What are their digital footprint management strategies? Despite the increasing social and professional significance of digital footprint, very little is known about how children (10-12 years old) understand the concept of digital footprint. What do children know about the liabilities and potential benefits, the curation of online identities, and how do they go about managing this? In the current context, there is a prevalent focus on children's online safety; however, children's own views on this are rarely reported. Theoretical perspectives on agency (James, 2009; Emirbayer and Mische, 1998) were utilised to analyse children's discussion of their online actions. The resultant findings offer unique and often tantalising insights into children's own knowledge and understanding of their digital footprint in the context of their self-described online behaviour, an area of increasing interest to parents, carers, educators and government alike.

Literature review: digital footprint, internet use and identity

Children's internet use

Over ninety percent of European children (aged 9-16) go online at least weekly, with sixty percent accessing the internet daily or almost daily (Livingstone et al., 2011). In the US, fifty-seven percent of children (aged 3-17) use the internet at home (Child Trends Data Bank, 2015). Australian children (aged 9-16) are some of the highest users of the internet in the world, with 76% of children accessing the internet daily for approximately an hour and a half each day (Green et al., 2011). Generally, children aged 9-16 are using the internet for 'schoolwork (86%), watching video clips (85%) playing games (78%), emailing (67%) and social networking (63%)' (Green et al., 2011, p. 8). Younger children in this age category are generally more involved in gaming than social networking, while older children are the opposite, however there is overlap - a quarter of Australian children between 8-13 years of age are on Facebook (Holloway, 2014, July). It appears that the catalyst for creating a social media profile is reaching

high school, as there was a significant increase in social networking between 9-10 year olds (29%) and 11-12 year olds (59%) (Green et al., 2011). Most children's social networking profiles are private (Australian Communications and Media Authority, 2013b).

Children in higher socio-economic status [SES] homes are more likely to receive assistance in developing their understanding and usage of the internet, as they have more frequent access to it, as well as adults who can assist them (Dolan, 2016). Digital literacy and computer skills are becoming increasingly valued; thus, low SES children are at a disadvantage (OECD, 2016; Sweeney and Geer, 2010). There is potential disadvantage for students who are not educated about digital footprints and do not possess the desired knowledge or skills needed to portray a positive online presence (Zhao and Elesh, 2007). The disparity in parental knowledge is highlighted by boyd who states: 'some teens are learning about technology from their parents while others are teaching their parents how to conduct a search query or fill out a job application' (2014: 23). The link between social disadvantage and digital disengagement is well established (Helsper, 2008; Livingstone and Helsper, 2007). While access to the internet and technology has improved for socially disadvantaged groups, it is noted that online social spaces operate in a similar fashion to everyday ones; meaning that some groups have forms of digital social capital which are more desirable (Zhao and Elesh, 2007).

Digital footprint and children

Internet usage is now thoroughly embedded in many children's lives (Livingstone et al., 2011). Although young people are frequently online, they do not consciously consider how their usage affects their digital identity, focusing instead on the short-term benefits of being able to network with friends (Oxley, 2010). Communicating with others via social networking services is one of the most popular uses of the Internet (Australian Communications and Media Authority, 2013a). This contributes towards an individual's online identity (Van Dijck, 2013) and the development of a person's digital footprint – that is, the traceable data and information and data that people produce when they go online (Thatcher, 2014). Digital footprints fit Yan's description of the internet – a 'double-edged sword that has both positive and negative social consequences' (2005: 387).

The digital footprints left by internet and social media usage can potentially affect their future careers or job prospects. Increasingly, media stories detail instances where individuals have lost their jobs or been discounted from higher education programs, based on content found on their social media accounts (Cooper, 2015; Singer, 2013). Reports such as these have led to a negative focus on children and young adults' use of the internet. Children and teenagers are building a much larger and more diverse digital identity than any other group previously, as they are online from a much younger age (Wakefield, 2014). Younger children and adolescents are much less likely than adults to consider how their present actions could have an impact on their future (Steinberg et al., 2009; Van Dijck, 2013).

Children and teenagers' extensive engagement with the internet has led to a moral panic about young people's online behaviours (boyd and Hargittai, 2013; Schrock and boyd, 2011). The media frequently portrays the internet as a technology that has corrupted young lives, focusing on stories about children being addicted to the internet, paedophiles stalking children online, cyberbullying destroying young people's lives, and teens' risky sexting behaviours (Johnson, 2014; Sandy, 2011; Wakefield, 2014). Media and popular cultural depictions of young people as perpetual victims and perpetrators function as modern morality tales warning of online dangers. This portrayal has led to a considerable body of work that focuses on ways that children and teenagers need to be protected from both themselves (Chapman and Buchanan, 2012) and the dangers of the Internet (Australian Communications and Media Authority, 2013a; Dodge, Husain, and Duke, 2011; Moore, 2012; Yan, 2009). Consequently, many children and teenagers are being discouraged from freely using the internet, in an effort to protect them from making mistakes and encountering danger (Ferriter, 2011). Accounts that focus unduly on the dangers posed by the internet frame children as passive, vulnerable consumers of digital culture endangered by the risks of the medium (Facer, 2012). This discourse portrays children as powerless victims rather resourceful participants (Stakrun & Livingstone, 2009), denying children agency and overlooking the ways in which children use the internet to establish their identities and participate in and extend their social worlds (boyd, 2014).

Curation for digital footprint management

Facer (2012) calls for a reframing of the debate surrounding children, young people and internet usage, rejecting the dominant definition of child as being innocent and naïve, and positing that what's needed is an investigation of why children interact in certain ways online. Such a reframing would allow for an exploration of how children exercise agency (James, 2009) in the online context. The concept of curation (see Andrews and McDougal, 2012) is gaining traction in relation to people's online identity and practice. Given the impact of the internet on employment and career development (Hooley, 2012), curation is an important skill for young people in terms of managing their digital footprints over the longer term. Curation is considered to be a 'core competency' for critical inquiry, online presence and participation in digital cultures (Mihailidis, 2016). Children and teenagers should be taught to curate a positive digital footprint, rather than solely being apprehensive of the ramifications a negative one can have (Camacho et al., 2012; Ferriter, 2011).

The Study

The aim of the larger *Best Footprint Forward* project was to investigate child, parent/carer and teacher knowledge, awareness and attitudes towards digital footprints and strategies used to manage these. Here we report only the results from focus groups held with thirty-three primary school students in years 5 and 6 (the final years of primary/elementary school in NSW). Through these focus groups we sought to address the questions: (1) How do children understand digital footprint, and (2) What are their digital footprint management strategies? Focus groups were conducted as this approach is used to elicit children's own view of the world and recognises children as active agents in constructing

meaning (Groundwater-Smith et al., 2015). Focus groups also provide children the opportunity to build on one another's explanations and facilitate discussion in a safe, peer-mediated space (Green and Hogan, 2013).

Participants

Thirty-three students (between the ages of 10-12 years) from three public primary schools participated in six mixed gender focus groups. The participating schools were situated in a regional area of NSW, Australia. Two focus groups took place at each of the three participating schools. These schools have been assigned pseudonyms for the reporting of results; West Public School, Lake Public School and Beach Public School. Given the exploratory nature of the study, convenience sampling was used. The principals of 25 primary schools in the local area were emailed information about the *Best Footprint Forward* project and an invitation to participate. The first 3 that agreed to participate were included in the study.

Ethical Procedures

The study was approved by the University of Newcastle's Human Ethics Research Committee [HREC approval number H-2015-0293] and through the NSW Department of Education and Training [SERAP approval number 2015436]. Signed informed consent was obtained from parents and signed assent from the participating children. Furthermore, the children's assent was rechecked at the beginning of each focus group when the facilitator summarised the project and the rights of participants in age-appropriate plain English, and asked the children if they assented to take part in the research. Participants were told that they were free to stop participating in the focus group sessions at any time; no child chose to stop participating in the discussion.

Data Collection and Analysis

Focus groups lasted approximately 40 minutes and were held during school time. They were audio-recorded and transcribed verbatim. The focus group discussion was guided by a schedule of questions and prompts (Green and Hogan, 2013). Specifically, the students were asked about what they thought digital footprints were, what they thought would be found if they googled themselves, what they did online, what devices they use to access the internet, and what they wanted to know about the internet.

Two members of the research team [TM and RB] manually coded the transcripts independently; then transcripts were read through together and comparisons made of highlighted key words and frequently occurring themes (Punch and Oancea, 2014). Where discrepancies occurred, the researchers talked through the differences in interpretation and went back to the transcripts for clarification (Green and Hogan, 2013), until the themes were agreed. The themes were: the normality of being online; relational use of social media; digital footprint management for cyber safety; and the children's changing online behaviour.

Theoretical position

While much discourse around children's internet usage positions children as being naïve and in need of protection, this position has been critiqued (Facer,

2012) and supplemented by work which describes how children and young people use the internet in ways which reflects their agency (boyd, 2014). We take the position that children are agents who actively construct their own lives, play a part in the lives and societies around them and form their own independent relationships and cultures (James, 2009). We view the study of children as being worthwhile in its own right and not for what it can tell us about the adult world, but rather what it reveals about children themselves and culture that they create (James, 2009). Our particular focus is children's digital lives and the relational ways that they use digital spaces. Given that young people use online spaces to socialize, jockey for status and communicate with one another outside the of the gaze of adults (boyd, 2014) our position is that children's agency is demonstrated through much of their online activities. We draw upon the work of Emirbayer and Mische who define agency as, not only being relational, but a:

temporally embedded process of social engagement, informed by the past (in its habitual aspect), but also oriented toward the future (as a capacity to imagine alternative possibilities) and toward the present (as a capacity to contextualise past habits and future projects within the contingencies of the moment) (1998: 963).

When examining children's online behavior, we consider children's agency as being evident in the ways that children build and maintain peer relations but also in the ways that they mediate their online actions based on past experiences, present contingencies and an understanding that their actions have future consequences.

Findings

The normality of being online and parental supervision

All thirty-three children that we spoke to said that they go online regularly for a variety of activities that include: communicating with their friends and family; doing research for school; watching videos on YouTube; and playing online games and exploring leisure interests. For example, one boy described how he liked to keep up-to-date with soccer [football] scores. The students stated they had ready access to computers (at school and home) and mobile devices (tablets, iPads, iPod Touches) at home which were the main means by which they accessed the internet. Mobile phones (particularly Apple iPhones) were seen as most desirable but few students had their own phones; some mentioned using either older siblings' or parents/carers' smartphones to go online. Of those without their own phones (the majority of the students we spoke to across the three schools) many expected that they would get one once they went to high school.

While going online was a normal daily activity for all the children, parental involvement and supervision varied greatly; ranging from students whose parent used software to track their email and internet use (mentioned by 3 children at 2 schools), and parents giving students guidance on how to behave online (most children), through to children who claimed that they were allowed to do what they wanted on their devices and were given no guidance and little supervision (5 children across 2 schools).

Facilitator: Do your parents teach you much about social media or talk to you about social media or anything?

Male student 1: No

Male student 2: They just told us not to have it.

Male student 3: Not me. Like I occasionally talk to my mum if there's anything wrong with my, like if's there's anything troubling me about, like my social media and stuff. [Focus Group B, West Public School]

Female student 1: My dad and mum, they like want me to do it by myself. They want me to try it by myself first.

Female student 2: My mum, she has like this little thing and she checks on me on her phone

Female student 3: Yeah. My email from the Apple ID is linked up to my mum's email so she can read [my] messages on her phone to see what I'm writing on my iPad to make sure I'm being nice

Female student 1: They sometimes like ask what social media and what internet I go on. [Focus Group A, Lake Public School].

Female student: Yeah. My mum always checks my iPod. She checks it all the time. [Focus Group A, West Public School].

Communication and social media use

While all students in the focus groups said that they used the internet to communicate with friends, not all used social media. This may reflect a lack of understanding of what constitutes social media, or that students communicate with one another via non-social media means such as email, instant messaging and Apple devices' iMessage service.

Facilitator: Okay. So, you keep in contact with your friends on iMessage and stuff?

Male student 1: Yeah

Male student 2: Yeah

Male student 3: Especially with emojis. [Focus Group B, Lake Public School].

Approximately 80% of participants spoke specifically about social media use with most of those (18 out of the 33 - a number of children at each school) having an account on the public photo sharing service, Instagram. Students' use of social media services was socially relational – determined by which social networking services were being used by those who they wanted to communicate with:

Female student: I have Kik but I don't use it. It's there to talk to my cousin. [Focus Group A, Lake Public School].

Female student 1: I had Facebook but nobody else does so I don't use it.

Female student 1: I've got friends and family [on Instagram].

Female student 2: Yeah. I have my aunty there as well. Even my grandma has Instagram. [Focus Group A, West Public School].

Three children used Snapchat and several others (in two of the schools) said that they had a Facebook account. For some, being their parents' "Facebook friend" was the extent of their social media use as they had few school friends allowed to use it. As the majority of children in this study were using Instagram the discussions were more focused on this platform.

Male student: My sister also has Instagram. A few of my class mates have Instagram, like people from other schools. Then like it's also – it's quite good because I have this one friend from another school and then he has other friends and it's kind of like all linked and stuff, then in high school I'll know more people than just that, than kids from your school and one dude from another school and stuff, so yeah, it's good. [Focus Group B, West Public School].

Students' online communication was grounded in their offline relationships (boyd, 2014). That is, students spent their time talking to people that they know, and online communication was a way of maintaining these friendships.

Facilitator: Who do you talk to?

Male student 1: Friends

Female student 1: [names another child]

Male student 2: People that I know

Female student 2: My best friend

Female student 3: My friends, not other people. [Focus Group B, Beach Public School].

When those with Instagram were asked whether their accounts were private or public, all 18 students said that it was private and that they were only friends with people that they knew. These online spaces were a place where they could exercise norms of peer communication (e.g. using emojis) and maintain their friendships, but their online communication was shaped by their concern about how they come across to others:

Female student: Yeah, So I try to be careful of what I say so I don't like sound mean. [Focus Group A, Lake Public School].

Male student: Sometimes like I – sometimes like I try to sometimes make myself look a bit cooler and stuff, but not all the time, maybe – yeah, not all the time, just sometimes. [Focus Group B, West Public School].

Although there was little discussion of students' construction of their digital identity, the above quotes show that some students were clearly conscious of their identity across their online and offline worlds. They show a concern for their presentation of self to others, and an awareness that they are curating an identity. This is agentic behavior with a focus on the present (Emirbayer and

Mische, 1998); that is, the children are consciously managing how others perceive them.

Digital footprint awareness

Each of the focus groups included a discussion of digital footprints and most children were able to readily describe what digital footprints were and the implications of these for their present actions and behaviour.

Male student: It's just like, if your applying for a job and you have a Facebook page they check it. [Focus Group A, Beach Public School]

Female student: Don't be silly online because it can, like, you never know, because, like the internet always keeps it. Like, even if you delete a post it will still be there. [Focus Group A, West Public School]

Female student: and it could ruin your career and not like, you couldn't get a job...because of what you did. [Focus Group A, Lake Public School]

During some of the discussions students revealed that their behavior had changed. They were becoming more aware of the implications of their actions and more reluctant to post online.

Facilitator: Do people put much online?

Male student: Used but no. [Focus Group B, Beach Public School]

Male student: I – the other day I saw my sister looking up herself and so I said, why? And I just looked myself up, so I did, started scrolling down and then I saw a picture of me, I was like “Oh”. And then I went “I shouldn't have posted that.” I just posted a video of me doing like something silly and someone's just screenshot and put it in Google and I was like. And, yeah, I haven't posted anything since of me. [Focus Group B, West Public School]

Female student: Everybody follows celebrities and stuff and they're fake accounts and I'm like no, because I've done that once and then I went to unfollow them all. I was following like 3000 people and I was like, okay, so I went through and unfollowed all the people that I didn't know because Mum had a talk to me and then it wouldn't let me unfollow them and I'm like, I'm starting a new account. So, I just got a new account and I just added friends and family. [Focus Group A, West Public School]

Here we see that these children are aware of the potential consequences of their actions and postings. The implications of this have led them to modify their behavior so as to be less visible and less vulnerable online.

Digital footprint management for cyber safety

Each of the focus groups included a discussion of cyber safety and the children were not only cyber safety aware, but were savvy in their descriptions of how to minimise risks online. Each of the six groups discussed strategies for keeping safe and they were able to recite the cyber safety messages that they were receiving from their schools (all three schools), and in some cases, from their parents. For example, participants described the rules that they followed to keep safe online:

Female student 1: Don't click on anything silly.

Male student: Don't click on any scams.

Female student 2: Don't leave any information behind, like where you live. [Focus Group A, Beach Public School]

Female student: Don't post pictures of your face.

Male student: Try and make your password as complicated as possible. [Focus Group B, Beach Public School]

Male student: Basically, stay away from social media sites that we haven't been given permission to use. If anyone tries to add you that you don't know, deny them. If they continue doing it, block them. Don't take advice from just anyone you found on the internet because it could be fake. Yeah. [Focus Group B, Lake Public School]

Male student: I've never put in – yeah, anything – if there's anything more than say, where you live or date of – or sometimes I put a date of birth but I don't really put in where you live and stuff, I just make sure it's just – like they can't be traced back to where I actually am and stuff. [Focus Group B, West Public School]

The children's understanding of, and concern regarding cyber safety shaped their digital footprint management. The children strategically managed their digital footprints by striving to minimise these. While Instagram was the most popular social media platform among the children we spoke to, very few used it to post photos; instead these children were using it as an instant messaging service to have private conversations with their friends. The children's agency is evident in the way that they have creatively adapted the platform to avoid leaving digital traces. They were able to communicate with their friends in a way that they felt was safe and that did not contribute to their digital footprints. They also felt that Instagram instant messaging kept their discussions private and that this communication could not be overseen by their parents. The comments from all groups demonstrated an ambivalence about revealing things publicly:

Female student: We have conversations on Instagram and we just talk. [Focus Group A, West Public School]

Female student: I only have Instagram. And I've only posted one photo. [Focus Group A, Lake Public School]

Male student: I don't really post anything. Just talk. [Focus Group B, Beach Public School]

Male student: Sometimes me and my mates just muck around and stuff, but we make sure that it's – like private, that no one else can really see what we're chatting about and stuff, because some of it's just like more serious and some of it's just more like, just messing around talking. Trying to see if we can like meet up somewhere sometimes, yeah. [Focus Group B, West Public School]

While one girl in the study described using Instagram to post selfies and artworks, like her peers in the study, her account was reported as being private. Most of the children we spoke with expressed a desire for privacy, and attempted to manage their digital footprints by not making public posts and using Instagram just 'to talk'. However, the children were concerned that their parents and carers (and sometimes, even their schools) thwarted these efforts by contributing to their digital footprints in unhelpful ways. There was an expressed dislike about the lack of control that they had over what others posted about them:

Female student 1: My mum posts photos of me all the time-

Female student 2: So does my mum

Female student 1: -And my dad. It's so embarrassing

Female student 3: My mother has, like 600 friends on Facebook. It's like, really, did you just post that?

Female student 4: It's embarrassing because, like, I friended my stepdad and he put a picture up of me and tagged me and it goes to my friends. It's so embarrassing. [Focus Group A, West Public School]

Children's digital footprint agency and implications for education

Male student: Because that [digital footprint] could affect you and your future. [Focus Group B, Lake Public School]

The exploratory nature, small sample size and specific geographic focus of this study suggests that caution is needed when extrapolating from these results; however, the study does provide a tantalising glimpse into the ways upper primary school age children understand digital footprint and how this understanding shapes their online behaviour. Little research has been done on the 'Tween' age group, and this study indicates these tweens exercise agency in regards to their digital footprints. This paper brings together theoretical perspectives on agency with an examination of children's perspectives on their online activities. The findings suggest that further fruitful research could be done to further investigate children's agency in digital spaces and their understanding and negotiation of cyber safety issues.

Agency

The children's discussion about their internet and social media use and their tactics to manage digital footprint reveals the ways they exercise agency online. Their self-described online behaviour was not idiosyncratic - it was purposeful, relational and shaped by their desire for cyber safety. The behaviour they report was informed by safety information they had been given in the past and the present communication norms they had developed with their friends. Both the norms of online friendship and formal education about cyber safety coalesced into agentic behaviour manifested in their efforts to minimise their digital footprints due to their concern about the possible future impacts of this. We see in these children's descriptions of their online social engagement that their actions are 'oriented toward the future' (Emirbayer and Mische, 1998: 963). Their actions show creativity and intentionality in the way that they adaptively use the Instagram platform. There is a sound logic in their avoidance of generating a digital footprint that could harm them in the future, while still managing the present contingencies (Emirbayer and Mische) of socialising and communicating with their friends online. While the children's self-reported behavior could not be verified, their descriptions and conversation make clear that they can be agentic, savvy and deliberate in their online actions and discussion.

Digital footprint and the school curriculum

While the dominant discourse around digital footprint suggests that these are a liability (Camacho et al., 2012) a positive digital footprint can be understood as "personal brand" that allows others to see your interests, achievements and skills. With the increased reliance on technology, a digital footprint allows for a quick "google" identity and competency verification. As Mallan notes:

The narratives of identity and agency that have traditionally been available to young people are being complemented by new possibilities that are the direct outcome of their participation in the larger technologically mediated world (2009: 53).

Educating children as they prepare for high school and the increased internet usage that comes with this (Green et al., 2011), would give them more management strategies that could benefit them over the long-term. The need for education about digital footprint in the primary school curriculum is supported by the children in this study who exercised online agency within the constrained range of options available to them and who indicated that the transition to high school would mark a broadening and deepening of their online engagement through the acquisition of their own smartphone.

Within Australia, the Australian Curriculum, Assessment and Reporting Authority (n.d.) has recognised the importance of digital literacy and being able to interact online by including digital/online texts as a required text of study in all year levels. Yet education on digital footprint is currently not included in the Australian National Curriculum (Commonwealth of Australia, 2015). Instead, each State or Territory has policies in place to guide schools on teaching content about digital footprint. This content generally relates to the issues of cyber bullying, harassment, Internet addiction and the implications of 'sexting', as

these are seen in society as the prevalent issues relating to children and teenagers and their use of the Internet (Schrock and boyd, 2011).

It is suggested that adults' ambivalence concerning the Internet has led to inadequate education on how to harness the advantages of the technology (Facer, 2012). boyd (2014) proposes that:

Rather than resisting technology or fearing what might happen if youth embrace social media, adults should help youth develop the skills and perspective to productively navigate the complications (p. 213).

It is important that children receive formal education that enables them to understand how to develop a positive digital footprint for their future (Wolf, 2015). Digital footprint education could help young people develop a strong, positive online presence. Such a presence can showcase the skills and achievements of an individual and signal engagement with and proficiency of Internet technologies; a current mandated educational outcome and a desirable attribute for the 21st century (Van Ouytsel et al., 2014).

Children in the latter years of primary school could be taught how to curate their online presence. That is, they could be explicitly taught that not all that they do online needs to be hidden. While it is appropriate that conversations with their friends not be public, they could be taught that digital artefacts that demonstrate their interests, achievements and skill could be both public and identifiable. School projects, awards, and digital artworks would be examples of things that would be appropriate to be attributable and traceable to them. Teaching children that digital footprints are not always a liability and can be developed in ways that benefit them would give children further options for exercising their agency online. Teaching children to curate their achievements and aspects of their digital identity would help prepare them for the greater freedom and use of digital technologies that will come with their transition to high school.

Strategies for cyber safety and digital footprint management

While the children we talked to have a high level of digital footprint awareness, they are only aware of digital footprints as a liability. Their responses in the focus groups did not include any discussion of the benefits offered by digital footprints. Their repurposing of Instagram as a messaging service suggests a savvy and pragmatic approach to the problem of (to paraphrase the words of one girl in the study) the 'internet always keeping it'. This suggests that educative interventions should be designed to empower and as well as protect children, to supplement their existing digital footprint management strategies.

A number of factors indicate that the final years of primary school would be an ideal time to begin to teach children about online presence and curation for a positive digital footprint. Firstly, they are lacking this information - the children we spoke to were not aware that a digital footprint could be a positive asset for their future. Secondly, 10-12 year olds are transitioning from predominantly game playing and video watching to more creative and generative uses of the internet and social media (ACMA, 2013b). Thirdly, the variability in parental

involvement and guidance, means that not all children will get this information from home (Sweeney and Geer, 2010). Fourthly, the strength of the cyber safety message that they are getting from schools suggests that this knowledge could be productively built upon such that children are provided with options about which online activities should remain invisible and which would be beneficial to have permanent and identifiable.

Parental education

From the perspectives of the children in our study there was a good deal of variation in the parental guidance and supervision that they were given in regards to their online activities (Sweeney and Geer, 2011). None of the children had been given information from their parents and carers about the cultivation of a positive digital footprint. The concerns that some children have about their parents and carers contributing to their digital footprints in ways that they do not desire suggests that parental education and the issue of informed assent/consent also warrants further attention. The care that children took not post publicly, was in stark contrast with some of the examples that they gave of their parents. The children in this study did not like their parents posting pictures of them online. While much research has focused on the online dangers faced by young people (Schrock and boyd, 2011) far less attention has been paid to the ways in which parents and carers contribute to children's digital footprints. Just as children should be educated regarding the cultivation of a positive digital footprint, parents and carers need to be aware of the issues too.

Conclusion

This study is a small-scale qualitative exploration of children's understanding of digital footprints, utilizing theoretical perspectives on agency that have not before been brought to bear on this nascent issue. The findings suggest that the last two years of primary school (when children are approximately 10-12 years of age) would be an appropriate time to educate tweens about good practices for the development of positive digital footprints. This stage marks a transition period for children, both from primary to high school and towards having more freedom online and greater access to digital technologies, and in the types of activities that children are doing online (from playing games towards greater use of the internet for socialisation). Children at this stage are clearly agentic and are demonstratively managing their digital footprint in strategic ways. In some cases, however, it would appear that children's agency to make decisions about their digital footprint is in tension with the actions of parents and carers who are posting about their children online, in ways that are not always seen as positive by children themselves. Therefore, we also suggest that education should also be developed for parents on digital footprint and its positive curation. When asked what would you like to know about the internet, one girl's question of 'How can it change your future?' eloquently gets to the heart of what's at stake in our increasingly digital society. Digital footprints can be an asset or a liability depending upon how well they are managed. Building on children's knowledge by giving them guidance in curating a positive online presence could go some way to help children shape their own future.

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