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## Expert insights into education for positive digital footprint development

Peer reviewed article

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Children and young people are spending more time online. Face-to-face interactions with friends are being supplemented with digital communication. Australian children are particularly prolific users of the internet (Green et al, 2011). This online activity creates digital footprints. Digital footprint refers to the information and data that people generate, through purposive action or passive recording, when they go online (Thatcher, 2014). Digital footprints now play a role in people's employment and educational opportunities (Black and Johnson, 2010). In this context not having a digital footprint can be as serious as having a badly managed one. One way to address this is for schools to explicitly teach students how to develop positive digital footprints that will help, rather than hinder, them in the future.

Many schools have yet to respond to the challenge of helping students develop reputational management skills. Schools are caught between children's and adolescents' existing social and recreational uses of the internet and their responsibility to protect their students both on and off line (Luke et al., 2017). On the one hand, schools are tasked with giving students 21<sup>st</sup> century skills - the knowledge and practices required for participation and success in a technological world. On the other hand, concerns about digital footprints, bullying, privacy, safety and risk have led school systems to respond with prohibitions that attempt to govern students' online exchanges (Selwyn, 2010). Given the emerging importance of digital footprints, expert insight can be utilised to provide guidance to teachers around this vexed issue.

The 'Best Footprint Forward' project involved a survey of digital experts and career advisers to get their perspectives on digital footprint education in the Australian school context. This article reports on the following research questions:

1. what do experts know about digital footprint management; and
2. what are their suggestions for education?

Despite the increasing social and professional significance of digital footprints, expert perspectives on education for digital footprint management are not well known. We move now to detail the literature, reviewing what is known about children and adolescent internet usage, the professional implications of digital footprints, and digital footprints and the Australian curriculum. After providing an overview of the findings of the survey of experts, we conclude by describing the implications of this for schools, and for teachers' practice.

## Literature review

### Australian children's and adolescents' internet use

Today's children growing up as part of the mobile generation are in constant communication with their peers and thereby creating new standards of behaviour and communication. Participation in this digital culture is facilitating cognitive, social and emotional development (Yan, 2018). In 2011, Green et al noted that Australian children (aged 9-16) are some of the highest users of the internet in the world, with 76% accessing the internet daily for approximately an hour and a half each day - using the internet for "schoolwork (86%), watching video clips (85%) playing games (78%), emailing (67%) and social networking (63%)" (p. 8). Since then, this usage has increased with 83% of Australian adolescents going online 3 or more times daily (ACMA, 2016). While children under the age of 12 are breaching the terms of service, a quarter of Australian children between 8-13 years of age are on Facebook, and a fifth are using Instagram (Holloway, 2014). Children's social networking profiles are predominately private (ACMA, 2013a). The catalyst for creating a social media profile is as children reach high school, when there is a significant increase in social networking. Most Australian children and adolescents access the internet in their homes (98%), while only 64% report accessing the internet at school in the past 3 months (ACMA, 2016).

Children and adolescents in higher socio-economic status [SES] homes use the internet in more sophisticated and creative ways than their lower SES counterparts (Dolan, 2016). High SES children 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 (Livingstone et al., 2011). As digital literacy and computer skills are becoming increasingly valued, low SES children can be at a disadvantage (OECD, 2016). This potential disadvantage extends to those who are not educated about digital footprints. Research with Australian 10 - 12 year old children in 3 schools in NSW indicates that they have been taught cyber safety and can describe the negative aspects of a digital footprint, but they are not aware that a digital footprint can be positive (Buchanan et al., 2017). Schools play an important part in reducing this disadvantage through teaching digital skills to all children regardless of background.

## Professional implications of a digital footprint

While young people are frequently online, they do not consciously consider how their usage affects their digital identity (Oxley, 2010). For Australian children and adolescents, communicating with others via social networking services is one of the most popular uses of the internet (ACMA, 2013b). This contributes towards an individual's online identity and digital footprint (Van Dijck, 2013). Children and young people are building a larger and more diverse digital identity than any other group previously, as they have been online from younger ages. Digital footprints can potentially affect children's future education and employment prospects. The media has recently focused on 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). Such stories have led to a negative emphasis on children's and adolescents' use of the internet.

Consequently, many children and teenagers are being discouraged from freely using the internet, in an effort to protect them from making mistakes (Ferriter, 2011). Media stories that unduly focus on the dangers posed by the internet (stalking, identity theft, cyber bullying, and internet addiction, for example) frame children as passive, vulnerable consumers of digital culture endangered by the online environment (Facer, 2012). This portrayal of children as powerless victims rather than resourceful participants (Stakrun & Livingstone, 2009) overlooks the multiple ways children use the internet to establish their identities, build skills, communicate, and engage in their social worlds (Boyd, 2014).

Human resource practitioners are using social media in selection, recruitment and hiring (Black and Johnson, 2012). McDonald, Thompson and O'Connor (2016) estimate that 55% of organisations now have a profiling policy detailing how they will use candidates' social media profiles to determine their employment suitability. Given the importance of the internet for employment and career development (Hooley, 2012), curation is an important skill for young people in terms of managing their digital footprints. Curation involves the deliberate generation and maintenance of an online presence that is designed to showcase an individual's achievements, skills, identity and interests. It involves judgment about what is kept private and what is suitable for a public persona. Curation is considered a "core competency" for online presence (Mihailidis, 2016). Young people should be taught to curate a positive digital footprint to maximise their life opportunities and career development (Camacho, Minelli & Grosseck, 2012), yet educational institutions are not addressing this (Benson, Morgan & Filippaios, 2014). While the prevailing discourse around digital footprints suggests that these represent a liability to be avoided (Camacho et al., 2012) a positive digital footprint can be understood as an asset, a "personal brand" that allows others to see your interests, achievements and skills. A digital footprint allows for a quick "google" to verify identity, competency and experience.

## Digital footprint and the school curriculum

Within Australia, the Australian Curriculum, Assessment and Reporting Authority (n.d.a) 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 footprints is currently not explicitly included in the Australian National Curriculum (ACARA, n.d.a). Instead, each State or Territory has policies in place to guide schools on teaching content about a digital footprint. Such content relates to the issues of cyber bullying, harassment, internet addiction and the implications of 'sexting', as these are viewed as the prevalent issues relating to children's and young people's use of the internet (Livingstone et al., 2011). A positive digital footprint 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 21<sup>st</sup> century (Van Ouytsel et al., 2014).

## **Methodology: Best Footprint Forward project**

The aim of the Best Footprint Forward project was to investigate child, parent/carer, teacher and expert knowledge, awareness and attitudes towards digital footprints and strategies used to manage these in the Australian context. In this article we report on the subset of the results from an expert survey. Given the predominantly negative messages about children's digital footprints that exist in the media and the growing importance of having a positive digital footprint, the aim of the expert survey was to canvass experts and gather collective wisdom about this issue. The research questions that we are reporting are: (1) What do experts know about digital footprint management; and (2) what are their suggestions for education? This paper focuses on what would be relevant for Australian teachers – that is, what do they need to know so that schools can successfully educate children and adolescents about digital footprints.

## **Recruitment**

The study was approved by the University of Newcastle's Human Ethics Research Committee [HREC approval number H-2015-0271]. Using LinkedIn, the research team created a list of professionals whose public profiles suggested expertise in digital education and/or university careers advice. The experts were predominately Australian – with education policymakers, teachers and university careers professionals recruited from Australia. Academics and researchers with expertise in digital footprint management were recruited from Australia and internationally. From this list, potential participants were emailed an invitation to participate in the survey. The email contained a link to Survey Monkey, where participation was anonymous. Over 200 invitations were issued and 53 people chose to participate.

## **Expert survey**

The survey was designed as an initial exploratory survey to gather a sense of the issues and possible solutions from career advisers and digital experts. The survey consisted of four demographic questions, nine open ended questions and an opportunity for general comments. The demographic questions were: gender; occupation; years of experience in current professional role; and highest educational qualification. The open-ended questions were:

- How would you explain digital footprint to the person in the street?
- What are the top issues around digital footprint for children (5-12)?
- What are the top issues around digital footprint for young people (13-25)?
- What do you think educators should know about digital footprints?
- What approaches should be taken to educate children, young people and students about digital footprints?
- What approaches should be taken to educate parents and carers?
- What do you think children, young people and students need to know about digital footprints?
- Who is responsible for providing education on an individual's digital footprint?
- Do you think there are any social justice/equity issues regarding digital footprint?
- Any other comments?

The responses to the open-ended questions were firstly inductively coded manually, then sorted into themes (Creswell, 2012).

## Participants

Of the 53 participants, 23 were men (43%) and 30 were women (57%). There were 24 university careers advisers (45%); 23 digital technology academics (43%); 5 researchers (9.4%); 2 education policymakers (3.8%); 2 consultants (3.8%); and 1 teacher (1.9%). Participants had been in their current roles for between 1 and 25 years; with the average time in the current role being 8.9 years. All participants had post-school educational qualifications, ranging from graduate certificates to PhDs.

## Findings: What did the experts say?

Digital footprints were described as the traces, trails, or footprints that people leave when they go online, e.g. "The traces of yourself that you leave online perpetually". While most responses gave variations on this simple definition, some were more comprehensive and detailed the extensive technology use that generates digital footprints:

A digital footprint is a trail left by your interactions in a digital environment, including your usage of TV, mobile phone, devices and sensors such as wearable tech like FitBit and Smart watches and the internet, mobile web, and it can be the history of your browsing/the comments you leave on a social network – newspaper/blog, your conversation via instant messenger/twitter, your shopping history or the record of what you read on your Kindle, the films and music you access (illegally or otherwise) and your browsing and shopping history.

Some responses incorporated the theme of identity, the sense that your digital footprint says something about you, into their definition; such as: “A digital footprint is information about an individual that can be found online. It can convey positive and/or negative messages about their professional and personal identities”.

The following themes were also found in the answers given about what are the top issues around digital footprints for children (5-12), and young people (13-25):

- permanent traces;
- the scope of the how they generated;
- the potential negative consequences; and
- the potential to positively portray an individual's identity;

An additional theme of children and adolescent development was also evident.

## Top issues around a digital footprint

The most salient themes in the responses were themes on the permanency of digital footprints and the negative issues associated with digital footprints. These answers: “Security of personal information, not understanding the risks of stalkers or cyber bullying, leaving an indelible record of their activities;” and “securing communications and understanding the permanency of online actions” exemplify the way the negative aspects were often (but not always) coupled with the theme of permanency. The negative aspects also included safety and exploitation, security, privacy, abuse, cyberbullying. Responses such as these, echo the media portrayal of the potential negative consequences associated with badly managed digital footprints.

The positive advantages of digital footprints were also articulated, but with a sense that these are not being taught and are not well understood. In addition to curation and a proactive contribution to a positive digital presence, respondents noted the potential for reputation and image management, creative expression, learning support, digital literacy, social community building and the broader capacity for digital skill building that comes with online activity:

written literacy versus new multimodal literacies: many of the literacy strengths of this group are possibly not measured in current academic terms, the extent to which games are building conceptual skills in spatial reasoning, problem solving, etc.

The scope of how digital footprints are generated was noted as an issue, especially in reference to passive digital footprints – data you don’t actively choose to put online, but which contributes to your digital footprint (Hengstler, 2011) e.g. “parents’ photos”, “Facebook photos, whether children have given permission for this data to be shared”. For some respondents, the children and young people’s lack of control over their digital footprint was the most serious issue.

The final theme identified was the issue of children’s and adolescents’ developmental stages. Many respondents noted children’s lack of understanding, stating: “Children are too immature to take a long-term view of the potential long-term consequences of their online actions”; and “too young to fully understand the implications of online”. Adolescent development was likewise described as being an issue:

Young people are not aware of the potential consequences of logging into new platforms such as AskFM using their Facebook profiles and are not as savvy as they could be with regards to the fact that it is virtually impossible to anonymise their actions online. They are often immature, impulsive, hormonal, labile, occasionally under the influence of substances such as alcohol or emotion (!) and are not consciously creating a digital footprint that will enhance their employability not inhibit it.

## Education for digital footprint management

Respondents were also asked about key aspects for education: what educators and students should know; possible pedagogical approaches for students and parents; and who should be responsible for digital footprint education. The responses suggested holistic approaches would be the most appropriate and that digital footprints are a societal problem for which there should be collective responsibility. Key themes about educational knowledge, approaches, and responsibility are summarised below in Table 1.

**Table 1.** Key themes for educating about digital footprint management

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<b>Teachers should know</b>	<ul style="list-style-type: none"><li>• How to model good digital citizenship</li><li>• School/Departmental policies</li><li>• How their students are using digital technologies</li><li>• How to curate positive digital footprints</li><li>• Risks and ethics of digital participation</li><li>• What is appropriate for the learners in their care</li></ul>
<b>Students should be taught</b>	<ul style="list-style-type: none"><li>• Digital citizenship/digital literacy</li><li>• Privacy, safety and data management</li><li>• Digital curation</li><li>• Implications of longevity</li><li>• Ethics of digital life</li></ul>
<b>Pedagogical approaches for students</b>	<ul style="list-style-type: none"><li>• Case studies – with examples of good and bad footprints</li><li>• A “digital selves” well-being approach</li><li>• A digital game based approach</li><li>• Students “googling” themselves</li><li>• Critical discussions</li><li>• Embedding this information in the curriculum</li><li>• Workshops (also with parents and carers)</li></ul>
<b>Educational approaches for parents/carers</b>	<ul style="list-style-type: none"><li>• Information sessions at schools</li><li>• Online learning</li><li>• Brochures/newsletters</li><li>• Community education and media campaigns</li><li>• Case studies – with examples of good and bad practice</li></ul>
<b>Whose responsibility</b>	<ul style="list-style-type: none"><li>• Teachers, Schools</li></ul>



**Table 1.** Key themes for educating about digital footprint management

<b>is digital footprint education?</b>	<ul style="list-style-type: none"><li>• Home, Parents/Carers</li><li>• Universities</li><li>• Employers, Corporate sector</li><li>• Government</li><li>• Social media providers</li><li>• Careers professionals</li></ul>
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## For Practice: What does this mean for education for positive digital footprint development?

Given that Australian children and adolescents are such prolific users of the internet, but the guidance that they get from home is uneven and divided along SES lines (Dolan, 2016) it is important that they receive guidance from schools. The end goal is students being able to curate their own positive digital footprint. As they work toward this, teachers can help students build upon their existing knowledge in ways that allow for safe and positive online participation. As Australian children and teens spend so much time online (ACMA, 2016), many students have a knowledge base that can be productively built upon.

Children in the latter years of primary school (Stage 3) and beyond could be taught that while it is appropriate that some online activities be private (communications with friends, for example), not all that they do online needs to be hidden. They could be taught that some digital artefacts, such as those that demonstrate their interests, achievements and skills could be both public and identifiable. Digital artworks, stories, school projects and awards would be examples of things that would be appropriate to have attributable to them. Teaching children to curate their achievements and aspects of their digital identity would prepare them with the skills needed to maintain a positive online presence. Stage 3 marks the time when many children start using social media (Holloway, 2014) and so would be an appropriate time to teach children about both the positive and negative aspects of their digital footprints.

A positive digital footprint is not merely an online or digital CV. It is a way of conceptualising online presence which emphasises the importance of that presence being coherent, positive and purposefully created. It is a set of skills, including communication and curation, that reframe a digital footprint from something to be avoided to something that individuals have some control over. A synthesis of the experts' views on digital footprints and educational approaches yields guiding principles for digital footprint management education. Such education should incorporate:

- Age/stage appropriate guidance
- Existing pedagogical models and curriculum outcomes
- Ethical communicative norms
- A community based approach

## **Age/stage appropriate guidance**

Suggesting that children and young people be taught to develop a positive digital footprint doesn't mean that everything that they do online be public. Children have been shown to have strategies for managing their digital footprints, by striving to minimise them (Buchanan et al., 2017). Direct messaging their friends for private conversations, maintaining password integrity and not making public their addresses nor birthdates are all appropriate management strategies. Also appropriate is the use of pseudonyms, which teaches children how to maintain a stable digital identity - a useful skill for when it becomes suitable for older teens to use their real names online. Digital footprint management education should be conducted in an age/stage appropriate manner so that children are scaffolded in the development of their reputational management skills. The ability to maintain their digital footprint in a positive manner is something to work towards, rather than being a starting point. Just as children's online activities change as they get older (Livingstone et al., 2011), so too should the guidance they are given.

## **Use existing pedagogical models and curriculum outcomes**

The Australian Curriculum has been characterised as being "overcrowded" (APPA, 2014) but digital footprint education need not be thought of as yet another thing that has to be added in. A positive digital footprint is a concept that could be productively incorporated into existing technology-focused curriculum outcomes in a variety of KLAS. Teaching students to create a digital footprint addresses several of the ICT general capabilities as outlined in the National Curriculum (see Figure 1). A well-curated positive digital footprint demonstrates the ability to: apply social and ethical protocols and practices when using ICT; manage and operate ICT; to communicate with ICT; and to create with ICT.

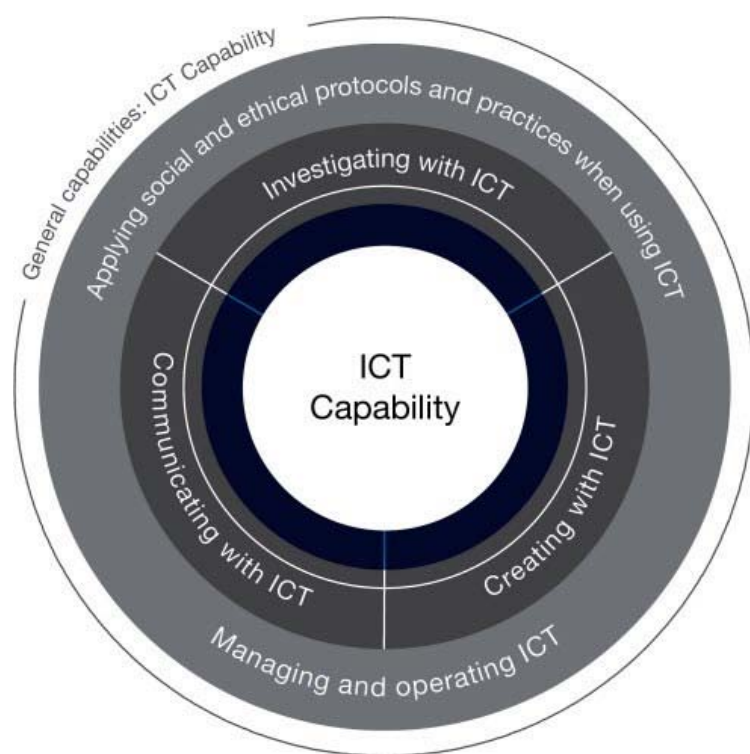


Figure 1. General capabilities: ICT capability (from ACARA, n.d.b.)

Likewise, pedagogical models such as the QTM (NSW DEC, 2003) and Project Based Learning (Larmer & Mergendoller, 2010) have scope for digital artefacts to be designed and assessed. These could be used to showcase students' digital skills and demonstrate the general capabilities of investing and creating with ICT.

## Ethical communicative norms

Digital footprint management goes beyond meeting the legal obligations of protecting children, following the code of conduct, and complying with computer usage policies. Most schools are not only fulfilling these legal requirements but are educating their students about cyber safety. Education for the development of a positive digital footprint doesn't finish at teaching students what they cannot do but builds productively on this by letting them know what they can do to develop an online presence that will be an asset to them in the future. This represents a shift from a model based on compliance to one based on ethical management.

Luke et al. (2017) state "the educational challenge raised by digital culture is not one of skill or technological competence, but one of participation and ethics" (p. 251). A digital footprint is not just a record of digital artefacts attributable to an individual. Not only posts but also comments on social networking sites, YouTube clips, news articles, reviews, and gaming chat are all a part of an individual's online presence. This communicative aspect of a digital footprint also needs attention. Children and young people should be taught to communicate and participate online in an ethical manner. In this way, they can be taught to build their online presence in a manner that demonstrates good digital citizenship.

## A community based approach

There are a variety of parental and carer approaches to children's and teens' use of digital technologies (Livingstone et al., 2011). While some parents and carers are happy for their children to have a visible online presence, others prefer that their children not be online. Likewise, not all children like others (schools and parents, for example) contributing to their digital footprints (Buchanan et al., 2017). If teachers and schools seek to make a determined effort to build positive digital footprints for and with their students, they would need to ensure that the school community, including parents and carers, are comfortable and can understand the potential advantages that a proactive positive approach brings.

## Conclusion

One of the respondents wrote of "the immediacy and longevity of digital engagement". Consideration needs to be given as how to best educate for digital footprint management so that these features of immediacy and longevity become assets rather than liabilities for students. This is not to claim that positive digital footprint education is not already happening in schools, but with this issue there are opposing perspectives. We present the findings from a survey of experts to inform teachers and give them options for the development of their practice in this area. While the experts make clear that there are negative aspects that must be attended to when considering digital footprints, there is also the opportunity to teach students how to build a positive online presence that can benefit them into the future. Such an education would turn Australian students' advanced internet usage into an asset rather than a liability.

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