Children’s risk and benefit behaviours on social networking sites

# Abstract

Despite the age restrictions of social networking sites (SNS) averaging age 13 years, younger children are engaging with these sites (Ofcom, 2019). Research has shown that SNS use exposes the user to many risks, such as cyberbullying and lower self-esteem. Alternatively, SNS use can enhance social capital (maintenance formation of friendships). Current literature has considered these mostly within adolescent and adult samples. This study aims to investigate the extent to which children’s behaviours on SNS predict risk and benefit outcomes. Within a sample size of 883, 351 children (aged 7-to-12 years) identified accessing SNS; these children completed an online survey measuring online self-disclosure, self-presentation, digital literacy skills, social capital, experiences of cyberbullying and self-esteem. Findings demonstrate that self-disclosure behaviours are associated with bridging social capital and that presentation of the real self is associated with the benefits of both bonding and bridging social capital. In terms of risk outcomes, self-disclosure behaviours are associated with cyberbullying perpetration and victimisation. These findings highlight that 7- to 12-year-olds are accessing SNS and that their behaviours online are associated with both risky and beneficial outcomes. Importantly, parents, teachers and policymakers should consider the benefits of SNS use, as well as the risks, in order to foster children’s digital engagement.

Keywords

Children, social media, behaviour, disclosure, cyberbullying.

# Introduction

Having known only a world embedded within a fast-paced, connective reality, children of primary school age (7-12 years) are engaging with the internet (Rosen, 2010). In particular, children are recognising and utilising social networking sites (SNS; Ofcom, 2019). However, little remains known about children’s online behaviour and to what extent this is associated with risky or beneficial outcomes. The average age restriction for SNS is 13 years old. Despite this, children are engaging with SNS; in the United Kingdom 21% of 8- to 11-year-olds and 4% of 5- to 7-year-olds own an SNS profile (Ofcom, 2019).

Exploration of SNS behaviours and their association with the risks and benefits has predominantly been explored with adult and adolescent samples. Yet, it is easy for children to bypass age restrictions and create an account with a false age (Livingstone & Brake, 2009; Livingstone, Ólafsson & Staksrud, 2011). Currently, an understanding of children’s SNS behaviours and how these may predict risky and beneficial outcomes is limited.

## Online behaviours

Adolescents (aged 13-24 years; Sawyer, 2018) are more likely to disclose personal information online than adults (Christofides et al., 2011). Considering children have even less social experience to understand social appropriateness and audience interpretation of disclosures, they may be even more likely to share inappropriate information online (over-disclose; Christofides et al., 2011). Online disinhibition, the perceived ease of online communication as a result of controllability of online interactions (Suler, 2004), may facilitate self-disclosure, which may increase the risk of over-disclosure (Schouten, Valkenburg & Peter, 2007); for example, adolescents are more likely to disclose about illegal activities online than within a face-to-face conversation (Peluchette & Karl, 2008). Particularly, for those with advanced digital literacy skills, online disinhibition may be elevated by greater control of online interactions (Gradinger, Strohmeier & Spiel, 2015; Kim & Faith, 2020).

 As well as self-disclosure, SNS provide an opportunity to manage impressions via self-presentation behaviours: the strategic manipulation of other’s perceptions about the self (Michikyan, Subrahmanyam & Dennis, 2015). During middle childhood, children begin to develop an understanding and recognition of self-presentation behaviours (Watling & Banerjee, 2007a, 2007b; Bennett & Yeeles, 1990). SNS use provides the time and space to craft self-presentation of the online self (Michikyan, Subrahmanyam & Dennis, 2015; Sørensen, 2016), especially for those with digital literacy skills (Besmer & Richter Lipford, 2010). Children may therefore seize the opportunity to explore self-presentation behaviours online.

## Cyberbullying perpetration and victimisation

Experiences of cyberbullying are a risk of engaging with SNS (Hamm et al., 2015). Cyberbullying consists of repeated hostile or aggressive behaviours through the medium of digital media which is intended to harm the victim (Tokunaga, 2010).

Engaging in perpetration behaviours (cyberbullying others) may be facilitated by online disinhibition (Wright, Harper & Wachs, 2019) as the risk of being identified and dealing with a consequence is limited (Comer, DeSerisy & Freif Green, 2016; Hinduja & Patchin, 2007; Michikyan, Subrahmanyam & Dennis, 2015). For instance, self-presentation behaviours may be utilised to present the false self to deceive (e.g., an anonymous profile). Further, increased time spent online may facilitate perpetration, especially for the digitally literate cyberbully (Park, Na & Kim, 2014). Importantly, previous research has identified that engaging in perpetration is risky for the cyberbully; for example, being a bully is associated with reduced friendships (Sigurdson et al., 2015).

Equally, engaging with SNS increase one’s likelihood of becoming victimised through the enhanced visibility to cyberbullies (Valkenburg & Peter, 2011). Public self-disclosure (i.e., to anyone within a network; Venkatanathan et al., 2014) can be perceived negatively by adult online audiences (Bazarova, 2012). Further, over-disclosing privately to a selected friend or small group of friends is still risky, as the child may be victimised if they misjudge the trustworthiness of the recipient (e.g., the recipient screenshotting and sharing; Ashktorab & Vitak, 2016; Bazarova, 2012; Jaynes, 2019). Amongst adolescents, negative responses to over-disclosure predict friendship difficulties, such as arguments and social exclusion, which can develop into experiencing victimisation (boyd & Ellison, 2007; Hinduja & Patchin, 2007; Molavi et al., 2018; Subrahmanyam & Greenfield, 2008). Additionally, utilising self-presentation behaviours to present the ideal self or false self to explore or compare/impress may also enhance visibility to cyberbullies, particularly if the disparity is identifiable (e.g., photoshop fails; Dredge, Gleeson & De la Piedad Garcia, 2014).

## Bonding and bridging social capital

SNS allows the user time and space to self-disclose more strategically (Krämer et al., 2014; Schouten, Valkenburg & Peter, 2007; Zhang & Jung, 2021), which may ease communication (Holloway, Green, & Livingstone, 2013; Lambert, 2016; Schouten, Valkenburg & Peter, 2007) and facilitate the maintenance of pre-existing friendships (bonding social capital; Putnam, 1993). In fact, Peter, Valkenburg and Schouten (2005) identified that early online chat rooms provided adolescents with the opportunity to practice social skills required for maintaining friendships (bonding social capital); further supported by Antheunis, Schouten and Krahmer (2016). SNS use could therefore provide children with a unique opportunity to bond social capital.

Furthermore, the time and space SNS affords may facilitate the use of impression management via self-presentation behaviours (Schouten, Valkenburg & Peter, 2007). Online, children can explore different self-presentation behaviours with far more creative freedom (Holloway, Green & Livingstone, 2013). For example, Yang and Brown (2016) found that presenting the real self predicted positive feedback; this may develop into feelings of friendship intimacy, thus bonding social capital (Peter, Valkenburg & Schouten, 2005; Valkenburg & Peter, 2011).

SNS also presents opportunities for bridging social capital (i.e., forming new friendships via a mutual friend; Schouten, Valkenburg & Peter, 2007). Importantly, in order to bridge social capital, one must introduce the self and share their interests, thus an element of self-disclosure is required (Cao, Simsek & Jansen, 2015; Cozby, 1973; Liu & Brown, 2014). There are an abundance of social groups and communities on SNS (Johnson & Ambrose, 2006; Mesch & Talmud, 2010; Wright & Li, 2011). Joining groups and disclosing within them can foster new friendships and hobbies or interests (Ito et al., 2008; Reich, 2010; Quinn & Oldmeadow, 2013).

Online self-presentation behaviours may also be useful for bridging social capital. The ability to spend time curating the online self may ease the process of initiating a new friendship, which can often be awkward offline (Michikyan, Dennis & Subrahmanyam, 2015); this could be especially beneficial for children who lack social experience (Livingstone & Helsper, 2007). Certainly, when we consider children’s social inexperience, practicing introducing the self, presenting the self, and forming new friendships online (bridging social capital) could be particularly effective for children’s social skill development (Abbas & Mesch, 2018; Livingstone & Helsper, 2007).

## Self-esteem

Online behaviours may also predict children’s self-esteem levels. Within a longitudinal study, with older adolescents, Steinfield, Ellison and Lampe (2008) found that those with low self-esteem experienced increased self-esteem over time when using Facebook. Those already low in self-esteem may find SNS use beneficial for expanding their social network by having the time and space to self-disclose with confidence (Blachnio, Przepiorka & Rudnicka, 2016; Ellison, Steinfield & Lampe, 2007; Gonzales & Hancock, 2011; Johnston et al., 2014). Further, Valkenburg, Peter and Schouten (2006) found that 10- to 18-year-olds self-esteem increased over time after receiving positive feedback via SNS. For those utilising self-presentation behaviours online, receiving positive feedback could therefore be beneficial upon self-esteem. When we consider the importance of developing self-esteem during childhood (Dupasquier et al., 2020; Iranmanesh et al., 2019; Robins & Trzesniewksi, 2005), SNS use may provide a beneficial opportunity for the iGen.

 On the other hand, SNS use may be a detriment to self-esteem. Online over-disclosure behaviours may receive negative feedback from the audience (Bazarova et al., 2014), which can reduce self-esteem (Dupasquier et al., 2020; Rui & Stefanone, 2013). Further, utilising self-presentation behaviours, particularly the ideal or false selves (Grieve, March & Watkinson, 2020), may negatively impact self-esteem as the user is aware of the disparity between the presented self and the real self (Kuppens & Van Mechelen, 2007; Meeus, Beullens & Eggermont, 2019; Michikyan, Subrahmanyam & Dennis, 2014). Considering children’s lesser social experience, in comparison to that of adolescents and adults (Christofides, Muise & Desmarais, 2011), they may be at risk of engaging in these behaviours and experiencing impaired self-esteem.

 Importantly, impacts upon self-esteem during childhood can have a long-term impact upon mental health (Jung & Cookston, 2009; Kwan et al., 2020; Pietig, 1977). Yet, an understanding of children’s, under 13 years, SNS behaviours and to what extent they impact self-esteem remains limited. Understanding whether children’s SNS behaviours are associated with self-esteem outcomes is important for supporting children’s development within a digital age.

## Research focus

As illustrated above, online self-disclosure and self-presentation behaviours via SNS use are associated with both risky and beneficial outcomes for adolescents and adults. Potential risks include engagement with cyberbullying perpetration, experiences of victimisation and reduced self-esteem. Potential benefits include bonding and bridging social capital and enhanced self-esteem. In this study we explore the extent to which children’s (7-to-12 years old) SNS behaviours (self-disclosure and self-presentation) predict previously identified risk and benefit outcomes amongst adolescents (cyberbullying perpetration and victimisation, social capital bonding and bridging, and self-esteem). We also consider the access and individual predictors of children’s SNS access, location of access, frequency of access, age and gender.

Based upon findings within adult and adolescent literature, it is expected that:

1. greater use of self-disclosure behaviours will positively predict cyberbullying perpetration and cyberbullying victimisation, and bonding and bridging social capital, but will negatively predict self-esteem;
2. greater self-presentation behaviours will positively predict cyberbullying perpetration and cyberbullying victimisation, bonding and bridging social capital and self-esteem.

Focusing upon children, under 13 years, will provide a stronger understanding of children’s SNS behaviours and to what extent these may predict risky and beneficial outcomes.

# Method

## Participants

Participants (N=901) were recruited to participate in an online survey from seven schools across the North of England (Sheffield and Stoke-On-Trent) and South of England (Norwich, Essex and Surrey). Due to the aim of this study focusing upon children’s SNS use, participants who neither owned any SNS nor accessed SNS via a friend or family member were removed from analyses. Further, participants with a completion rate less than 80% and participants who had not completed the outcome variables (social capital, cyberbullying and self-esteem) were removed from analyses. This resulted in a final sample size of 350. Participants were aged between 7 and 12 years (M= 10.08, SD= 1.13; 52% female) with 71% identifying as White British/Irish, 7.7% as Asian, 5.4% as Mixed, 1% as Black, 15% identified as Other or did not specify.

Ethical approval was granted through the institutional Research Ethics Committee. Following ethical approval, schools were contacted by the lead researcher and invited to participate. If they agree to be involved, schools disseminated information letters for both teachers and parents. Schools were offered the choice of opt-out or opt-in consent; all schools chose to send out parent opt-out consent forms with full information on the research. Parents returned the form to the school if they wished for their child not to be included in the study and this was retained by the school. All children who participated provided informed consent.

## Materials and measures

We conducted our survey within the Qualtrics platform. The study included six scale measures outlined below. Due to the young age range of participants, visual aids (emojis and progress bars) were provided alongside the Likert points for assistance. To allow for clarity with the younger participants and avoid children ‘averaging’ estimates across platforms, children provided responses for each SNS platform individually (Facebook; Instagram; SnapChat; Other), with the exception of cyberbullying perpetration and victimisation, and self-esteem, which for ethical purposes were measured as overall scores only (Bauman, Cross & Walker, 2013).

### SNS access

In line with past research (e.g., Livingstone et al., 2011; Mascheroni & Ólaffson, 2013), participants reported on their SNS ownership, frequency of use, digital device ownership and location of access. Participants were also asked whether their mother, father or any other family member owned an SNS account.

In addition to general access questions, participants completed a six-item scale measuring perceived digital literacy that was devised by the lead researcher. Participants were asked to “Click the stars to show me how confident you feel about…” followed by each item. One item related to profile management (“changing your profile to private”), two items related to using SNS settings in general (“finding where the settings are” and “changing the settings”) and three items related to contact management (“changing your profile to private”, “blocking contacts”, and “unfriending contacts”). Each item was rated on a 5-point Likert scale which was designed on a visual analogue scale of stars ranging from (1) “Not at all confident” to (5) “Very confident”. All items were forward coded. Mean scores were calculated; higher scores indicate greater perceived digital literacy. This scale presents high internal reliability (α= .94).

### Self-disclosure

Participants completed an adapted version of the Online Self-Disclosure Scale (Schouten, Valkenburg & Peter, 2007) to measure online self-disclosure behaviours. The original scale was designed for adults and so was adapted for this study to ensure age appropriateness for our participants and applicability to SNS use in general. We removed inappropriate items (e.g., about ‘being in love’ and ‘sex’) and rephrased other items (e.g., “Moments in my life I feel guilty about” was rephrased to “Things you have done and feel bad about”). Children were asked to “Imagine a boy/girl whom you regularly communicate with via [name of SNS], would you message them about …” for five items (e.g., “how you feel”, “your secrets”) and were then presented with each item again to respond to “In general, would you post about…” to ensure that data regarding private and public disclosure behaviours were collected.

Participants judged items on a 5-point Likert scale ranging from (1) “I tell nothing about this” to (5) “I tell everything about this” in response to each SNS platform separately. Regardless of platform, the final item score for each participant was equal to the greatest level of disclosure reported for the item. All items were forward coded. Mean of the item scores were calculated; higher scores indicate greater disclosure behaviours. The overall scale presents high internal reliability (α = .81).

### Social capital

To measure participants’ social capital behaviours, the Bonding and Maintained Social Capital Scales (Ellison, Steinfield & Lampe, 2007) and the Off to Online Scale (Williams, 2006) were used as a basis for a combined scale measuring both bonding and bridging behaviours. Both of the original scales have previously been used with older adolescents (aged 18-24 years); therefore, to ensure age appropriateness for our participants some items were adapted (adaptions are outlined below).

* + - 1. Bonding

The original bonding social capital scale consisted of ten items (Ellison, Steinfield & Lampe, 2007); six items were removed as they were unrelated to our participants’ age group. Three items were adapted and, to measure bonding social capital in groups (e.g., “If I was in an emergency, I know someone at [uni from survey] I could turn to” was adapted to “If I needed help, I know someone online who I could ask on …”. One item (“I feel I am part of a community”) was broken down into three items (“I feel I have lots of friends on …” , “I feel I belong to a group on…”, and “I feel I am accepted by my groups on…”).

 Participants rated all of these items on a 5-point Likert scale ranging from (1) “I never do this” to (5) “I do this all the time” in response to each SNS platform separately. Regardless of platform the final item score for each participant was equal to the greatest extent of their behaviour for the item. All items were forward coded. Mean of the item scores were calculated; higher scores indicate greater bonding social capital behaviours. This sub-scale presents a high internal reliability (α = .90).

* + - 1. Bridging

The original bridging social capital scale consisted of four items (Williams, 2006). Two of these items were unchanged and two were adapted in order to ensure relevance to SNS use in general (e.g., “I have used Facebook to check out someone socially” was adapted to “I have found someone I met in person using SNS”).

 Participants rated all of these items on a 5-point Likert scale ranging from (1) “I never do this” to (5) “I do this all the time” in response to each SNS platform separately. Regardless of platform the final item score for each participant was equal to the greatest extent of their behaviour for the item. All items were forward coded. Mean of the item scores were calculated; higher scores indicate greater bridging social capital. This sub-scale presents high internal reliability (α = .91).

### Self-presentation

Participants completed an adapted version of The SPFBQ (Self-Presentation on Facebook Questionnaire; Michikyan, Subrahmanyam & Dennis, 2014) to measure behaviours depicting online self-presentation techniques. This scale was originally created for older adolescents (aged 18-24 years) and so was adapted to ensure age appropriateness for our participants. The original scale consisted of 17 items. Four items were removed for age appropriateness (e.g., “I have a good sense of what I want in life and using Facebook is a way to express my views and beliefs.”). Eight items were unchanged and the remaining six items were adapted for age appropriateness (e.g., “I have a good sense of who I am and many of the things I do on my Facebook profile is a way of showing that” was adapted to “I like to show who I am on [name of SNS]”. The adapted scale therefore consisted of 13 items.

Participants rated each item on a 5-point Likert scale ranging from (1) “not at all true for me” to (5) “always true for me” in response to each SNS platform separately. Regardless of platform the final item score for each participant was equal to the greatest extent of their behaviour for the item. All items were forward coded. Mean item scores were calculated; higher scores indicate greater use of self-presentation behaviours. This scale presents high internal reliability (α = .95).

### Cyberbullying

Participants completed an adapted version of a combination of the Cyberbullying Offending and Victimisation scales (Hinduja & Patchin, 2010). The original scale was conducted with older children and adolescents (aged 10-16 years) and referred to internet use in general; therefore, items on the scale were rephrased to relate to SNS use specifically. Participants were provided with the brief: “In the past two weeks have you:” followed by the items presented in either the offending or the victimisation scales (their order of presentation was randomised for all participants).

* + - 1. Offending

This scale was used to measure extent of cyberbullying perpetration behaviours. The original scale consisted of six items. Three items were unchanged and the remaining three items were adapted to relate to SNS use (e.g, “…sent someone computer text message to make them angry or to make fun of them” was adapted to “…posted about someone to make them angry or to make fun of them”.

 Participants rated items on a 4-point Likert scale ranging from (1) “never” to (4) “more than three times”. All items were forward coded. Overall mean scores were calculated; higher scores indicate greater cyberbullying perpetration behaviours. This sub-scale presents high internal reliability (α= .94).

* + - 1. Victimisation

This scale consisted of 10 items measuring extent of victimisation. One item was removed as it did not apply to this study’s aim (e.g., “…had something posted on your MySpace that made you upset”). Nine items were adapted to relate to SNS use (e.g., “…been made fun of in a chat room” was adapted to “…been made fun of online”). A tenth new victimisation item was included (“…received an upsetting photo from someone you didn’t know”) to ensure that responses reflected a range of victimisation experiences, from both known individuals and from strangers.

 Participants rated items on a 4-point Likert scale ranging from (1) “never” to (4) “more than three times”. All items were forward coded. Overall mean scores were calculated; higher scores indicate greater cyberbullying victimisation. This sub-scale presents high internal reliability (α= .81).

### Self-esteem

Participants completed an adapted version of the Rosenberg Self-esteem Scale (Rosenberg, 1965) to measure self-esteem. This scale was originally constructed for an adult sample and so some items were adapted for age appropriateness. The original scale consisted of 10 items. Six items were unchanged and the remaining four items were adapted to be age appropriate (e.g., “All in all, I am inclined to feel that I am a failure” was adapted to “I feel like a failure”).

 Participants rated items on a 5-point Likert scale ranging from (1) “strongly disagree” to (5) “strongly agree”. Five items were reverse coded. Mean item scores were calculated; higher scores indicate higher self-esteem. This scale presents acceptable internal reliability (α= .69).

## Procedure

Participants, in groups of 20-30, were seated in such a way that they could not view others’ screens either within their school’s ICT suite (in front of individual desktop computers) or within their own classrooms (using individual iPads or laptops). Children were provided with written information sheets, which was also verbally presented. Participants were then asked if they would like to participate; if yes, they would click to provide consent on Qualtrics. Children were then assigned a unique identifier, completed the demographic questions, followed by the set of questionnaires that were presented in a randomised order across participants. The survey took approximately 30 minutes to complete and was conducted in a silent environment. Participants were verbally debriefed once the whole class had completed the survey and provided with the opportunity to ask questions.

# Results

## Descriptive information

In total, 280 children identified owning an SNS account: 40% had SnapChat; 37% had Instagram; 7% had Facebook; 42% specified another platform (e.g., Whatsapp, Music.ly, Roblox, Minecraft). Across these participants, 445 accounts were owned; 114 children owned more than one account; 70 children accessed SNS via another individual: 56% via a family member; 47% via their mother; 25% via their father. Tablets were the most owned digital device (80%) and the majority of these had internet connection (95%), and before starting school (36%) was the most reported time of first internet use. Further descriptive information is presented within Table 1.

\*\*\* TABLE 1 HERE \*\*\*

## Analyses

To assess our research aim of children’s SNS behaviours and how these predict outcomes that are considered risks and benefits, we completed a series of linear mixed effect models. SNS ownership was included as the random intercept for each model using binary categories of 0 (access SNS only via another’s account) or 1 (access via own account) in order to measure whether ownership of a profile had an impact upon the risks and benefits.

Five linear mixed effects models were completed using the lme4 packages in R (Bates et al., 2015) as well as the lmerTest package to calculate significance in accordance with Satterthwaite’s method (Kuznetsova, Brockhoff, & Christensen, 2017). Fixed effects of age, gender (binary: 0 male, 1 female), frequency of SNS use (binary: 0 weekly, 1 daily), private access (in the bedroom; binary: 0 no, 1 yes), public access (not in the bedroom; binary: 0 no, 1 yes) and digital literacy scores were entered within each model as these theoretically capture potential descriptive predictors discussed within current literature. Disclosure and self-presentation behaviours were entered as fixed effects within each model as these behaviours may lead to the risky and beneficial outcomes. Social capital bonding and bridging, cyberbullying perpetration and victimisation, and self-esteem scores were each an outcome variable as these capture the current known SNS risks and benefits within adult and adolescent literature.

Means (SDs) of our measures and bivariate Pearson correlations between our measures are presented in Table 2. A summary of the analysis is presented within Table 3.

\*\*\* TABLE 2 & 3 HERE \*\*\*

### Summary of findings

The benefit of bonding social capital was higher with higher reported use of self-presentation, for male participants, for those who access SNS in private and those who have higher self-reported digital literacy. Bridging social capital was higher with higher levels of reported self-disclosure and use of self-presentation, as well as those who access SNS in private and those who have higher self-reported digital literacy.

Self-presentation scores were calculated by averaging responses to the real self; ideal self; false self to explore; false self to compare/impress; false self to deceive. To understand which self-presentation behaviour was associated with bonding and bridging social capital, a linear regression was conducted using the lme4 package in R (Bates et al., 2015) as well as the lmerTest package to calculate significance in accordance with Satterthwaite’s method (Kuznetsova, Brockhoff, & Christensen, 2017; see Table 4). Presentation of the false self to deceive negatively predicted bonding social capital, $β$= -0.41, t(343.00) = -3.09, p<.001. Presentation of the real self positively predicted both bonding social capital, $β$= 0.37, t(343.00) = 2.50, p<.05, and bridging social capital, $β$= 0.32, t(343.00) = 2.50, p<.05.

 The risk of cyberbullying perpetration was significantly higher for children with higher levels of self-disclosure and children who reported accessing SNS in a public space. Scores for public access were calculated by averaging responses to SNS use outside of the bedroom, including at home in another room; at a friend’s house; at school; on-the-go; elsewhere. In order to understand which public space was associated with perpetration, a linear regression was conducted using the lme4 package in R (Bates et al., 2015) as well as the lmerTest package to calculate significance in accordance with Satterthwaite’s method (Kuznetsova, Brockhoff, & Christensen, 2017). Access from a friend’s house positively predicted cyberbullying perpetration, $β$= 0.14, t(343.00) = 2.13, p<.05. Cyberbullying victimisation was also significant higher for children with higher levels of self-disclosure but for children who reported accessing SNS in a private space and had lower self-reported levels of digital literacy.

\*\*\* TABLE 4 HERE \*\*\*

# Discussion

This study contributes to a limited amount of research exploring children’s (7- to 12-year-olds) SNS behaviours and to what extent they predict outcomes that are considered risks and benefits. Online self-disclosure behaviours predicted positive outcomes for greater bridging social capital, but also negative outcomes including a greater likelihood to engage in cyberbullying perpetration behaviours and experience victimisation. Self-presentation behaviours positively predicted both bonding and bridging social capital, and self-esteem. Our findings also highlight that males engage in bonding social capital online more so than females. As well as the main predictors focused upon within this study, our findings highlight that access and children’s individual characteristics are associated with both risk and benefit outcomes.

Owning an SNS profile and accessing it privately positively predicted the benefits of bonding and bridging social capital as well as greater self-esteem. Further, greater digital literacy skills positively predicted both bonding and bridging social capital. This aligns with suggestions that SNS can be beneficial for children. SNS use may provide children with an opportunity to independently socialise (Cho, 2015; Livingstone & Haddon, 2009) and develop their digital literacy skills (Livingstone, 2014); where successful, this may benefit self-esteem. As well as the benefits identified with SNS use, and despite claims that time spent on SNS is risky (Park, Na & Kim, 2014), here we did not see that time spent on SNS predicted the risks of cyberbullying, cybervictimisation or lower self-esteem. Our findings offer further support for reports that amount of time on SNS is not the main underlying link to associated SNS risks (Kardefelt-Winther, Reese & Livingstone, 2020). Specifically, this work is the first to show no association between 7-to-12-year-olds’ SNS use frequency and common risks associated with SNS use, but we have identified benefits of using SNS.

Interestingly, accessing SNS from a friend’s house predicts the likelihood to engage in cyberbullying perpetration. It is widely reported that the presence of peers encourages cyberbullying perpetration (Festl, Sharkow & Quandt, 2013; Monks, Mahdavi & Rix, 2016; Shim & Shin, 2016), as well as many other antisocial behaviours (Nathanson, 1999). Peer pressure may therefore result in partaking in cyberbullying perpetration (Livingstone & Helsper, 2007).

Researchers have shown that children’s online autonomy is intertwined with cyberbullying victimisation (Hinduja & Patchin, 2008, 2010; Smith et al., 2008). In our work we demonstrate that SNS ownership and accessing privately within the bedroom predict greater levels of cyberbullying victimisation. Firstly, it may be that children’s online behaviour when they access SNS via a family member’s account is monitored by family (Appel et al., 2016), which may result in a lower risk of over-disclosure (Lee & Chae, 2012) and subsequent visibility to cyberbullies (Mesch, 2018). Secondly, possibly the presence of others is a protective factor (in person check on appropriateness of what is being posted) from victimisation while accessing SNS privately may be a risk. Our findings cannot determine this, so it would be important to consider this in future research.

Importantly, we have demonstrated that 7- to 12-year-olds’ SNS use and behaviours are related to identified benefits of using SNS (e.g., bonding and bridging social capital; Ahn, 2012). Of interest, we found that males engaged in bonding social capital behaviours more so than females. Traditionally, research have reported that in relation to online friendships, females disclose more to their friends (e.g., Lenhart et al., 2007; Schouten et al., 2007). Previous research, however, rarely considers the nuanced differences of bonding and bridging social capital online. Males typically self-disclose less to friends and view shared activity as an indicator of friendship (Rose, 2007; Winstead, 1986). Perhaps, males may engage in shared activities such as online games and SNS challenges in order to bond social capital. Providing boys with the opportunity to bond online may be particularly beneficial in allowing them to develop friendship intimacy.

* 1. Bonding and bridging social capital

Our findings provide evidence that online self-disclosure behaviours predict bridging social capital, albeit not bonding social capital. Interestingly, with a sample of emerging adults, Liu and Brown (2014) presented similar findings, although they did find a predictive relationship between self-disclosure and bonding social capital when mediated by positive feedback. Online self-disclosure is evaluated by both the audience (Bazarova, 2012) and the individual who discloses; positive evaluation is reflected within positive feedback and this is an indicator of friendship quality and subsequently bonded social capital (Jang & Yoo, 2009). Thus, we see the potential benefits for children who self-disclose on SNS. Based upon this, it would be interesting to explore whether the addition of positive comments reaps the benefit of bonding social capital rather than self-disclose behaviours alone.

 In alignment with our findings, Liu and Brown (2013) also identified that self-disclosure behaviours predicted benefits for bridging social capital. In order to form any type of relationship, some level of disclosure is required to share basic personal information. Particularly for the digitally literate child who lacks opportunity for social independence (Corsaro, 2015), self-disclosing online may be beneficial for developing their social network. Children have been found to lack social autonomy (Corsaro, 2015) and thus having access to SNS may provide them with the opportunity for social independence and allow them to use impression management tactics, which may benefit self-esteem (Best, Manktelow & Taylor, 2014; Steinfield, Ellison & Lampe, 2008).

 We also found that self-presentation behaviours positively predicted both greater bonding and bridging social capital outcomes. Interestingly, our supplementary findings highlight that particular types of self-presentation predict these outcomes. For example, presenting the real self is beneficial for both bonding and bridging social capital. In order to strengthen pre-existing relationships (Bareket-Bojmel, Moran & Shahar, 2016; Garcia-Rapp, 2017) or to introduce the self and form a new friendship, presentation of the real self is beneficial (Liu & Brown, 2014; Ranzini & Lutz, 2017; Quinn & Oldmeadow, 2013).

We know that children become increasingly aware of other’s self-presentation behaviours, the motivations behind these and the impact upon different audiences (Banerjee, Heyman & Lee, 2020; Nesbit & Watling, 2019; Rapp, 2017; Watling, 2019). In fact, our findings highlight that children are able to identify inauthentic self-presentation behaviours of others: those who present the false self to deceive are less likely to bond social capital. Presenting the false self to deceive is often fuelled by antisocial goals (Hart et al., 2017) and thus will not enhance characteristics required for bonding social capital (e.g., trust, loyalty; Phua, Jin & Kim, 2017; Poortinga, 2006). Our findings therefore emphasise that children may experience the benefits of bonding social capital online by presenting the real self and suggest that children are developing the skills to interpret other’s online self-presentation behaviours; the latter requires further investigation.

## Cyberbullying perpetration and victimisation

While disclosing online can is associated with the benefits of building social capital, as discussed above, it can also expose children to the risks cyberbullying perpetration and victimisation. Online self-disclosure may encourage perpetration, particularly where the user feels disinhibited by the online environment (Suler, 2004; Wolak et al., 2008). In our study, we found that 7- to 12-year-olds who disclosed more details about the self were more likely to engage in cyberbullying perpetration. In fact, Dowell et al. (2009) found that those who engaged in self-disclosure behaviours online were subsequently more likely to post inappropriate content, harass and embarrass others. Importantly, where children engage in self-disclosure behaviours to engage in cyberbullying perpetration, they are exposed to potentially wider risks, such as impaired mental health (Alim, 2017; Kota & Selkie, 2018).

Equally, online over-disclosure can increase visibility to cyberbullies resulting in victimisation (Peluchette et al., 2015; Schacter, Greenberg & Juvonen, 2016). Within adolescent samples, research has identified that self-disclosure, with the intention of social capital goals, can easily be misjudged and result in over-disclosure (Bryce & Fraser, 2014; Valkenburg & Peter, 2009). Kwan and Skoric (2013) highlight that disclosing online in order to bridge social capital (particularly with strangers) exposes adolescents to victimisation even further; extending this, our results identified that children’s self-disclosure behaviours predict bridging social capital. In an attempt to form new friendships, children may be misjudging their disclosure and subsequently increasing their visibility to cyberbullies. The long-term impacts of these experiences are widely evidenced as harmful upon mental health and wellbeing (Kwan et al., 2020). Educating children about safe self-disclosure behaviours may be particularly important in ensuring that the benefits of bridging social capital are reaped, without experiencing the risks of victimisation.

* 1. Self-esteem

As we expected, self-presentation behaviours positively predicted benefits to (i.e., more positive) self-esteem; albeit a relationship between a specific self-presentation technique and self-esteem was not found. Holloway, Green and Livingstone (2013) contextualise the online environment as a play space for children aged under 13 years. When we consider the many SNS functions (e.g., likes, filters, stickers, interactive polls) and how visually stimulated children are (Hitch et al., 1988; Nardini et al., 2010), SNS may present a very inviting play space. Children’s play comprises opportunities for productivity, especially when that play incorporates wider skills (Starbuck & Webster, 1991). In terms of online self-presentation behaviours, children may explore a range of techniques, orientated through play. In fact, Subrahmanyam and Šmahel (2011) found that adolescents explored different self-presentation techniques online. For example, the real self was explored via blogs, whilst the false self to explore was explored via gamified avatars in online video games. In comparison to these findings, perhaps children aged 7-to-12 years view SNS as an online play space and are therefore more inclined to use self-presentation techniques as a form of play. In fact, Stephen et al. (2008) argue that children do not view the online space as a tool, as adults do, but rather another play medium. In relation to this, children may be less likely to utilise specific self-presentation techniques for specific goals but rather play with these techniques; this would be interesting to explore further.

Those who owned a SNS profile reported higher levels of self-esteem. Ellison, Steinfield and Lampe (2008) found that SNS use had a positive impact upon young adults’ self-esteem, particularly for those who already had low self-esteem. We know that the social autonomy of owning SNS benefits adolescents’ self-esteem (Valkenburg, Peter & Schouten, 2006), so perhaps for children, aged 7-to-12 years, who are further limited in social autonomy (Corsaro, 2015), we may also see this association. Further, we know that children’s play is associated with self-esteem. Bunker (1991) identified children’s play as an important predictor of self-esteem, including experiences of both social success and failure. In relation to children’s SNS use, the online space may offer important benefits for children to explore social outcomes. As the digital world is increasingly prevalent in children’s lives, building self-esteem through online means may be important for their development.

* 1. Limitations and future research

This study does contain some limitations. Due to the younger age range (7-to-12 years) of our participants, the measures included required adaptation to ensure for age appropriateness. It is important to investigate younger children’s online behaviours; ensuring that measures accurately capture these is vital in ensuring validity of findings. Importantly, our measures presented high internal reliability; it would be useful for future research to replicate these measures.

 This study explores children’s (7-to-12 years) SNS use within the context of notions that have emerged within adolescent and adult literature; this is due to the limited literature addressing this age range’s SNS use. As a result, although we have investigated the association between these behaviours and the risks and beneficial outcomes, these risks and benefits may not reflect those which children are actually experiencing (Anderson & Hanson, 2009; Darbyshire & MacDougall, 2005). In response to this, it would be important to conduct qualitative research with this age group, which allows for the emergence of themes which are directly applicable to children’s experiences of SNS use. Furthermore, longitudinal data related to these risks and benefits would also provide a greater depth of understanding into this age range’s SNS use.

* 1. Conclusion

Our study is unique in its focus upon children’s SNS behaviours and to what extent this predicts their access to outcomes which are associated with risks and benefits. Crucially, these findings highlight that younger children (7-to-12 years) are accessing SNS and that their behaviours are associated with both risky and beneficial outcomes. Disclosing online may enhance the likelihood of engaging in cyberbullying perpetration behaviours and experiencing victimisation, which we know to have potential long-term detrimental outcomes. But importantly, disclosing online, especially presenting the real self, is associated with bonding and bridging social capital, which we know to have potential long-term positive outcomes. It is important for parents, practitioners and policymakers to acknowledge this and to educate children about the relevant risks and benefits in order to empower children within a digital age.

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Appendix A. Over-disclosure items.

|  |
| --- |
| Imagine a boy/girl who you are friends with on Facebook/Instagram/SnapChat. How likely are you to message/post\* them about: |
| How you feel |
| Things you are worried about |
| Your secrets |
| Things you have done and don’t want anybody to know about |
| Things you have done and feel bad about |

Note: All items scored from 1 (I tell nothing about this) to 5 (I tell everything about this), with higher scores indicating over-disclosure; \* participants presented with these items twice regarding ‘direct message’ and ‘post’ separately.

Appendix B. Social capital items.

|  |  |
| --- | --- |
|  | Sub-scale |
| I have found someone I met in person by using Facebook/Instagram/SnapChat. | Bridging |
| I have learnt more about people in my class by using Facebook/Instagram/SnapChat. |
| I have learnt more about people living near me by using Facebook/Instagram/SnapChat. |
| I have made new friends by using Facebook/Instagram/SnapChat. |
| I feel life I have lots of friends on Facebook/Instagram/SnapChat. | Building |
| I feel I belong to a group on Facebook/Instagram/SnapChat. |
| I feel I am accepted by my groups on Facebook/Instagram/SnapChat. |
| I have lots of friends online who I trust. |
| If I needed help, I know someone online who I could ask. |
| I have friends on Facebook/Instagram/SnapChat who I can turn to for advice. |

Note: All items scored from 1 (I never do this) to 5 (I always do this), with higher scores indicating greater social capital in general and for bridging and building separately.

Appendix C. Self-presentation items.

|  |  |
| --- | --- |
|  | Sub-scale |
| I sometimes try to be someone other than my true self on Facebook/Instagram/SnapChat. | False self to deceive |
| I am a completely different person online than I am offline. |
| I post information about myself on my Facebook/Instagram/SnapChat that is not true. |
| I like to show who I am on Facebook/Instagram/SnapChat. | Real self |
| Who I am online is similar to who I am offline. |
| I am proud of myself and like to show this on Facebook/Instagram/SnapChat. |
| I show different sides of me on Facebook/Instagram/SnapChat. | False self to explore |
| I change my photos to show different sides of who I am on Facebook/Instagram/SnapChat. |
| I compare myself to others on Facebook/Instagram/SnapChat. | False self to compare/impress |
| I try to impress others with the photos I post of myself on Facebook/Instagram/SnapChat. |
| I only show the sides of me online that I know other people will like. |
| I post photos online to show who I would like to be. | Ideal self |
| The things I do online show who I would like to be. |

Note: All items scored from 1 (Not at all true for me) to 5 (Always true for me), with higher scores indicating higher self-presentation.

Appendix D. Self-esteem items.

|  |
| --- |
| On the whole, I am happy with myself. |
| At times, I think I am no good at all. |
| I feel that there are lots of good things about me. |
| I am able to do things as well as most other people. |
| I feel I do not have much to be proud of. |
| I certainly feel useless at times. |
| I feel that I’m as good as others. |
| I wish I could have more respect for myself. |
| I feel like a failure. |
| I feel good about myself. |

Note: Items one, three, seven and 10 were forward coded and items two, five, six, eight and nine were reverse coded, with higher scores indicating greater self-esteem.

Appendix E. Cyberbullying items.

|  |  |
| --- | --- |
|  | Sub-scale |
| Posted something about another person to make others laugh. | Perpetration |
| Posted about someone to make them angry or to make fun of them. |
| Posted a picture of someone without their permission. |
| Directly sent someone a message to make them angry or to make fun of them. |
| Directly sent others a picture of someone without their permission. |
| Have any of the above things happened more than once? Yes/No |
| Received an upsetting message from someone you know. | Victimisation |
| Been made fun of online. |
| Received an upsetting message from someone you didn’t know. |
| Had something posted online about you that made you upset. |
| Had something posted about you online that you didn’t want others to see. |
| Been picked on or bullied online. |
| Been afraid to go online. |
| Received an upsetting photo from someone you didn’t know. |
| Receiving an upsetting photo from someone you know. |
| Have any of the above things happened more than once? Yes/No. |

Note: All items scored from 1 (Never) to 4 (More than three times), with higher scores indicating greater perpetration and victimisation.

Appendix F. Digital literacy items.

|  |
| --- |
| Digital literacy items |
| Click the stars to show me how confident you feel about… |
| Finding where the settings are.  |
| Changing the settings on Facebook/Instagram/SnapChat |
| Changing your profile to private on Facebook/Instagram/SnapChat. |
| Blocking contacts on Facebook/Instagram/SnapChat. |
| Unfriending contacts on Facebook/Instagram/SnapChat. |

Note: All items were scored from 1 (Not at all confident) to 5 (Very confident), with higher score indicating greater perceived digital literacy.