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## Exploring British Adolescents' Views and Experiences of Problematic Smartphone Use and Smartphone Etiquette

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### Abstract

Smartphones are now a ubiquitous part of daily life for adolescents in the United Kingdom, who use their phones for a multitude of reasons beyond calling or texting. To date, little qualitative research has been conducted with adolescent smartphone users about their experiences of smartphone use, particularly problematic or excessive use. This study directly explored the topics of problematic use and smartphone etiquette with 13 British adolescents aged 16–18 years across three focus group discussions. An inductive thematic analysis resulted in the development of four themes related to users' experiences: The Comfort Bubble, Digital Native Etiquette, The Extended Self, and Defining Dependency. These themes encompass the different drives underlying potentially excessive or antisocial smartphone use and how young people seek to minimize these risks by monitoring both their own and others' smartphone use. The findings of this study demonstrate the complexity of disentangling functional and enjoyable smartphone use from problematic use in an era when smartphones are embedded so deeply in modern life. The implications of these findings are discussed in terms of potential future measures of problematic smartphone use and ways of promoting education about healthy smartphone use by applying some of the strategies put forward by the young people in this study.

**Keywords:** adolescents, behavioural addiction, dependency, focus group interview, problematic technology use, qualitative research, smartphones

### Résumé

Les téléphones intelligents sont omniprésents dans la vie quotidienne des adolescents au Royaume-Uni. Ceux-ci les utilisent pour une foule de raisons dépassant le simple appel ou message texte. Il existe à ce jour très peu de recherches qualitatives menées auprès d'adolescents qui utilisent un téléphone intelligent au sujet de leur expérience

d'utilisation, particulièrement si elle est problématique ou excessive. Cette étude se penche directement sur l'utilisation problématique et l'étiquette chez 13 adolescents britanniques âgés de 16 à 18 ans dans le cadre de trois groupes de discussion. Une analyse thématique inductive a permis de cerner quatre thèmes liés à l'expérience des utilisateurs : la bulle du confort, l'étiquette numérique naturelle, l'extension du Soi et la définition de la dépendance. Ces thèmes englobent les différents facteurs qui peuvent sous-tendre l'utilisation excessive ou antisociale des téléphones intelligents et la façon dont les jeunes cherchent à réduire ces risques en surveillant leur propre utilisation et celle d'autres personnes. Les conclusions de cette étude démontrent à quel point il est complexe de faire la distinction entre l'utilisation fonctionnelle et agréable du téléphone intelligent et son utilisation problématique à une époque où cet appareil est si profondément ancré dans la vie moderne. Les implications de ces conclusions sont abordées sur le plan des mesures futures potentielles visant l'utilisation problématique des téléphones intelligents et les façons de promouvoir la sensibilisation à l'usage sain à l'aide de certaines des stratégies suggérées par les jeunes ayant participé à cette étude.

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## Introduction

Smartphones are used by approximately 85% of the UK population (41 million people), which rises to 96% for 18-to-24-year olds (Deloitte, 2017). Smartphones allow individuals to stay connected to each other and the wider world; however, some of the risks of their increased prevalence are beginning to emerge, such as increased accidents caused by using smartphones while walking or driving (Hyman et al., 2010; Lamberg & Muratori, 2012; 'Motorists Take Photos and Videos at the Wheel, says RAC', 2016), reports of increased sleep disturbance, increased stress, lower academic performance, and lower satisfaction with life (Lepp et al., 2014; Samaha & Hawi, 2016; Thomée et al., 2011). There is also significant evidence that links excessive smartphone use with psychopathologies such as depression and anxiety (Cheever et al., 2014; Demirci et al., 2015; Elhai, Levine, Dvorak, & Hall, 2017; Harwood et al., 2014).

The emergence of these issues is substantial enough for mainstream media articles to refer to excessive or prolonged smartphone use as an "addiction," which presents researchers with a number of decisions as to how problematic smartphone use is defined and measured (Dredge, 2018; Titcomb, 2018). Terminology such as *problematic*, *dysfunctional*, and *compulsive* use and smartphone *dependency* and *nomophobia* are used interchangeably within the literature to highlight the negative aspects of excessive smartphone use (Elhai, Dvorak, Levine, & Hall, 2017). Smartphone apps have emerged on the market to help users limit their screen time and manage their smartphone use (Goldman, 2015). App developers have also highlighted that many smartphone functions illicit reward-seeking behaviours from

users (Lewis, 2017) by activating the dopaminergic pathways associated with reward-related cognitions, similar to those associated with other substance or behavioural addictions (Everitt & Robbins, 2005; Gilroy-Ware 2017).

Although there is no clinical diagnosis for smartphone addiction or problematic smartphone use, the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013) does refer to “non-substance addiction” as a psychiatric diagnosis. Behavioural addictions are typically signified by loss of control over behaviour that persists despite negative consequences and by withdrawal symptoms induced by a reduction in the behaviour (Cheever et al., 2014; Clayton et al., 2015). A pertinent and related example would be internet gaming disorder, which was included in the 11th revision of the *International Classification of Diseases* (*ICD-11*) and in the *DSM-5* in the section recommending further research (American Psychiatric Association, 2018; World Health Organization, 2018). Both the *ICD-11* and the *DSM-5* emphasize key aspects of this behavioural disorder, such as impaired control over gaming, prioritization of gaming over other interests and daily activities, and escalation of gaming despite negative consequences. The inclusion of such similar behavioural disorders highlights the need for researchers to parse functional use of these types of technologies from problematic or disordered use. Researchers have already begun to use some of these underlying features of behavioural addiction to inform scales that measure aspects of problematic smartphone use such as the Smartphone Addiction Scale (SAS; Kwon et al., 2013). The SAS is a 48-item self-assessment scale that includes items related to withdrawal, tolerance, and daily life disturbance (e.g., missing planned work due to smartphone use, feeling impatient or fretful when not holding a smartphone, and feeling tired/lacking adequate sleep due to smartphone use).

Today’s adolescents growing up in developed Western countries, such as the United Kingdom where smartphones are widely available, appear to be particularly at risk of problematic smartphone use and the related negative outcomes. Those born after 1995 have been dubbed the “iGen” generation because of their exposure to and adoption of Apple smartphones and related products (Twenge, 2017). For teenagers, sleep is especially important for physical and emotional development, maintenance of good mental health, and good academic performance (Suni, 2020). Yet it is estimated that at least a quarter of 16- to 19-year-old smartphone users in the United Kingdom have responded to messages that they have received in the middle of the night (Deloitte, 2017). Longitudinal evidence also shows that adolescents who own a smartphone report significantly more sleep disturbances than non-owners do, and they sleep less on school nights (Schweizer et al., 2017). Other studies have also highlighted the co-occurring rise in depressive symptoms and suicide rates of adolescents, those who spend more time on smartphones being more likely to experience mental health issues (Twenge et al., 2018).

Clearly there are some implications for young people today who are growing up with smartphones, yet only a handful of studies to date have explored the experiences of younger smartphone users directly in order to gain a deeper understanding of the

“push factors” (i.e., loneliness, stress, anxiety) and the appealing “pull” factors behind excessive smartphone use (Lapointe et al., 2013). In one study, Russo et al. (2018) focused on the experiences of graduates over the age of 19 who reported feelings of anxiety, difficulty sleeping, and fear of missing out when separated from their smartphones. In another study, Fullwood et al. (2017) conducted focus groups with young adults (average age 25.9 years) who appeared to largely use their phones to alleviate boredom and who felt that the majority of their smartphone use was habitual rather than conscious. Smartphone use is multifaceted in nature, but the qualitative studies that have been conducted with young adults clearly highlight some of the experiences of young smartphone users, problematic or otherwise.

This study therefore aimed to address the lack of qualitative literature that explores the views and experiences of problematic smartphone use with individuals aged 18 years and younger. Our aim was to provide rich insights into adolescents’ perceptions and experiences of smartphones in order to answer the following questions:

**RQ1.** What experiences and attitudes characterize adolescents’ relationships with their smartphones?

**RQ2.** Do users consider any aspect of their smartphone use to be problematic?

### **Method**

This study used an exploratory qualitative approach underpinned by a constructivist epistemology, which acknowledges the interactive link between the researcher and participants in order to distil information and produce a sophisticated consensus about the topic of investigation (Guba & Lincoln, 1994). Three focus groups with 13 participants (five male adolescents, eight female adolescents) were conducted in the spring of 2018 to gain a range of young people’s experiences. This particular method was chosen in order to produce a stimulating discussion in which both researcher and participants could explore and challenge ideas about adolescent smartphone use and dependency. Focus groups were the preferred format for data collection in order to encourage participants to help each other discuss smartphone etiquette and potentially problematic use. The researchers wanted to provide a more open, less formal setting, where participants felt encouraged to share, both with the interviewer and with each other, in a judgement-free setting.

Convenience sampling was used to recruit participants from a state high school in the United Kingdom. The local area of the school was suburban, with students who are predominantly white and from middle-class and working-class families. The school is rated Outstanding by the Office for Standards in Education, Children’s Services and Skills, with students typically achieving national average grades or higher. The researcher and project were introduced to students in grade 12 and 13 psychology classes by their teacher. Although the researcher and students did not know each other prior to the study, the researcher worked directly with students in the lower

school (grades 9–11) and was therefore familiar with the school itself and able to gain permission from the school principal and governors prior to conducting the research. Students were given a participant information sheet and consent forms and were asked to sign up for one of the three focus group sessions.

Thirteen participants formed three focus groups that consisted of five (two male, three female), two (two male), and six (one male, five female) participants. Participants were ages 16–18 years, although their individual ages were not recorded as part of the study data collection. The size and gender make-up of each group depended on the availability of students and access to the research setting during the period of fieldwork.

### **Materials and Protocol**

A private interview room at the students' school was used for the discussions. All participants returned their signed consent forms and were given the opportunity to reread the participant information sheet and ask any additional questions. The researcher then established a group culture and introduced group expectations, including respecting one another's opinions and not discussing the group conversation outside of the meeting room. Participants were assured that no opinion was right or wrong and were encouraged to disagree with each other in a respectful way in order to gain a multitude of viewpoints.

A focus group schedule was devised to cover a broad range of smartphone experiences. The discussion was split into two sections: (1) smartphone usage, habits, and meaning and (2) problematic smartphone use, dependency, and separation. Each section had 12 questions that the researcher worked through systematically in each focus group discussion, sometimes coming back to certain topics or questions that elicited more animated discussions. Example questions in each section are outlined in Table 1.

Participants were probed further on their answers, although the precise wording of these questions remained flexible throughout the research process in order to allow for novel themes to emerge (Braun & Clarke, 2005; Bryman, 1984). The focus groups concluded after all questions in the focus group schedule had been asked, in addition to anything else participants wished to contribute at the end of the discussion. Participants were thanked for their time and given a debrief sheet that outlined the nature of the study; recordings of the interviews were stored securely by following Northumbria University data storage guidelines. The first group session (five participants) lasted 71 min, the second (two participants) 32 min, and the third (six participants) 46 min.

### **Data Analysis**

Interviews were recorded and transcribed verbatim to accurately capture participant dialects and vernacular in line with Braun and Clarke's (2013) notation system. Data

**Table 1**

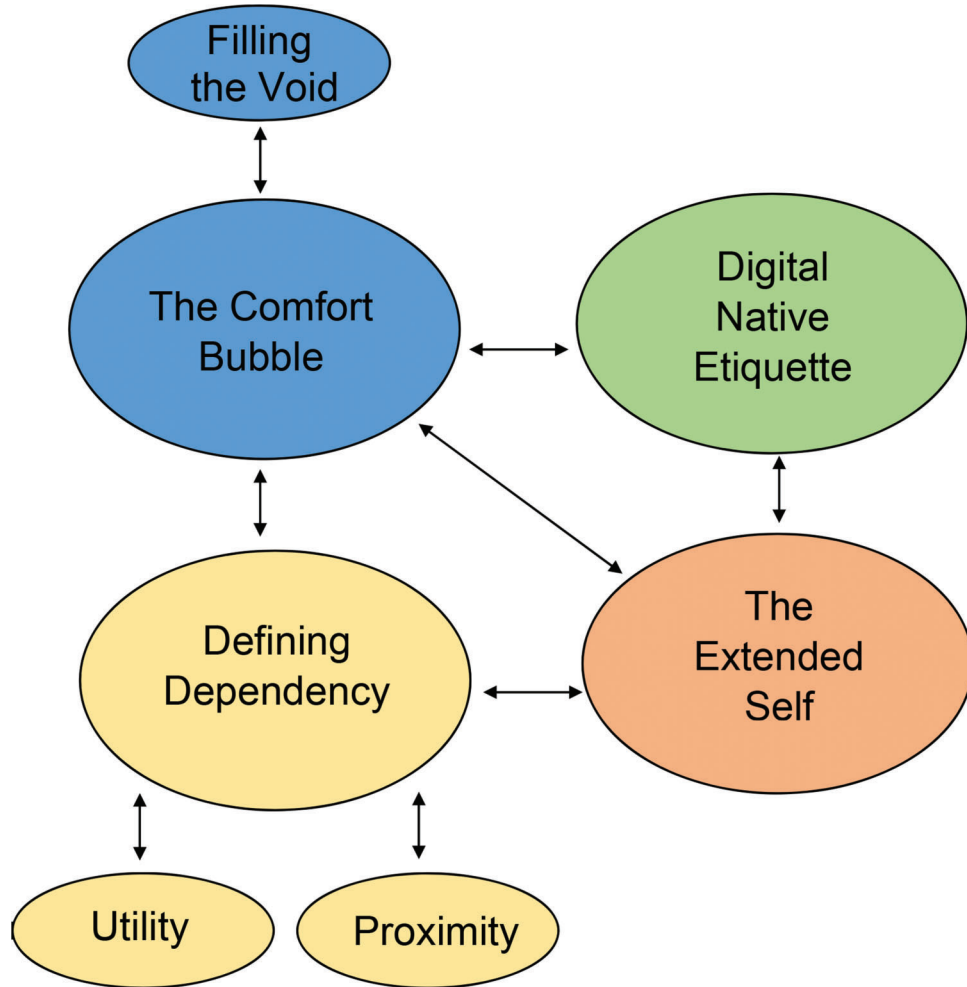
*Focus Group Schedule Example Questions Divided Into Two Topics: (1) Usage, Habits, and Meaning and (2) Dependency and Separation*

Focus Group Topic	Example focus group schedule questions
Part one: Usage, habits, and meaning	<ul style="list-style-type: none"> <li>• What are the main reasons for using your phone?</li> <li>• How often do you feel you need to check your smartphone?</li> <li>• Approximately how much time do you spend on your phone in a typical day?</li> <li>• What are the key times in your day when you spend the most time on your phone?</li> <li>• How does your smartphone affect your friendships and other relationships (including family)?</li> <li>• Do you think your communication style changes when you're texting/messaging friends and family?</li> <li>• Do you find your phone ever interferes when you're spending time with people face-to-face?</li> <li>• Is there anything we haven't covered so far that you use your phone for or you feel it helps you to do/achieve?</li> </ul>
Part two: Dependency and separation	<ul style="list-style-type: none"> <li>• Where do you keep your phone while you sleep? (Prompt: Do you put your phone on silent at night? Do you ever check your phone in the middle of the night?)</li> <li>• Does your phone ever interfere with your sleep?</li> <li>• What do you think about the idea of keeping your phone in a different room to your bedroom?</li> <li>• I'd now like to ask you a scenario-based question. If, say, your phone was broken and you weren't able to get it replaced for 48 hours, so you had to go two days without a phone, how would that affect you?</li> <li>• [If any participants mention anything to do with panic, disconnectedness, sadness, loss, or anxiety, then try to prompt them more about this by asking, "I find it interesting that you mentioned _____. Why do you think you would feel that way?"]</li> <li>• [If participants mention anything to do with calmness, relief, headspace, or freedom, then try to prompt them more about this by asking, "I find it interesting that you mentioned _____. Why do you think you would feel that way?"]</li> <li>• What would be the worst part about not being able to have your phone?</li> </ul>

were analysed via thematic analysis in line with the guidance for rigorous practice set out by Braun and Clarke (2006). Given the novelty of the research topic, the analysis performed was inductive and highly flexible to allow for potentially novel themes to be identified. The transcripts were then coded manually by the researcher by using comments and colour coding until no new codes emerged, and a final list of codes was refined or combined if they were found to overlap. Codes were then grouped into initial themes; a thematic map was then generated. Notably, themes and sub-themes were generated both in terms of prevalence within the data and how significantly they pertained to the research questions.

**Figure 1**

*Final Thematic Map Displaying Four Main Themes and Two Sub-Themes: The Comfort Bubble (Filling the Void); Digital Native Etiquette; The Extended Self; Defining Dependency (Utility; Proximity).*



### Results

Inductive analysis produced four main themes with several sub-themes, as shown in Figure 1. The themes were The Comfort Bubble (sub-theme: Filling the Void), Digital Native Etiquette, The Extended Self, and Defining Dependency (sub-themes: Utility and Dependency). This thematic model highlights the way in which the key themes formed independent, important aspects of adolescent phone use but also combined to create a picture of the respondents' overall experiences and attitudes.

Table 2 provides a brief overview of each theme, including how the initial themes were incorporated into the final thematic map.



**Table 2**

*Evolution from Initial Themes to Final Themes and Sub-Themes with a Brief Description*

Theme	Sub-theme(s)	Initial themes incorporated	Brief description of theme
The Comfort Bubble	Filling the Void	Soothing, comfort, and escapism	Responses related to the phone providing comfort, distraction, safety, and escapism
Digital Native Etiquette		Circumstantial use; self-management and monitoring use	Rules and etiquette that participants deem socially acceptable, including monitoring their own usage by friends and family
The Extended Self		Phone as identity; staying connected	How participants use the phone to stay connected, to stay updated, to present themselves, and to communicate and participate in the digital social world
Defining Dependency	Utility and Proximity	A tool for modern living; attachment and addiction	Responses in which participants discussed the concept of smartphone addiction, the need for proximity to phone, distress when separated from phone, and detachment when phone is viewed simply as a utility

**Theme 1: The Comfort Bubble (Sub-theme: Filling the Void)**

The Comfort Bubble encapsulates the safety and security that having a smartphone offered participants in situations where they felt socially awkward, lonely, or stressed. Many participants referred to this phenomenon both directly and indirectly, and it appeared to be a primary driver behind phone use that did not relate to a specific function such as sending a message or performing an internet search. Instead, this experience was more closely related to meeting an emotional need for comfort, reassurance, or a perceived sense of belonging. This allowed users to soothe negative emotions such as low mood or loneliness either by providing them with connection through social media platforms, direct correspondence with contacts, or simply a distraction that enabled them to “retreat” from uncomfortable emotions. This type of smartphone use often seemed automatic (i.e., without the need for prior planning) and was particularly alluring during times of uncertainty or restlessness:

*Sammy: If I'm doing something that I'm really enjoying and it's completely occupying my mind then I can completely forget about my phone.... If I'm in a good mood I'm often less likely to go on my phone because I don't feel like I need it so much... If I'm in one of those moods where I'm just taking out my phone every two seconds it usually means I'm that I'm either bored or just, like, not in a good mood.*

For others, the Comfort Bubble was not necessarily an escape from negative internal states but from external circumstances, often typified by a degree of social awkwardness or a desire to withdraw from others. Smartphones therefore also appeared to serve as a signal to others that the young person did not want to engage or be approached and allowed them a degree of control over their environment:

*Eileen: If I go to town on my own by myself, I'll have my phone and I'll constantly be on my phone and I'll have my headphones in and I won't be acknowledging anyone else and it's like a comfort thing.*

*Jordan: I do that when I'm walking to lessons by myself... I just don't look at people and I don't know why... Like I won't be actually looking at what I'm doing I'm just scrolling... It makes your hands look busy so it makes you look like you're not wandering.*

By having the smartphone in close proximity, respondents felt like they could discreetly withdraw to a place where they felt welcome or engaged without physically leaving. They were able to remain physically present without experiencing the same intensity of negative feelings:

*Sammy: It's kind of like taking yourself from a place where you're not welcome to a place where you always are because you get to kind of control what you're doing... so it is a really attractive option when something's going on that you're not enjoying.*

*Robin: I think like if you're around people that you don't really know that well I'll check my phone more because I don't really know what to do with myself.*

### **Sub-theme: Filling the Void**

Another significant aspect of this type of habitual smartphone use is the need to fill time or to try to avoid feelings of boredom. Respondents were very reflective on the times that they found themselves scrolling without a specific purpose:

*Skye: Even if I've checked Instagram or Twitter five minutes ago and there's nothing, I'll still go on there and I'll still just refresh it just... I don't even think about it I just pull it out.*

*Jay: If I was just walking for like a straight thirty minutes I just think I would go insane like just walking with yourself for thirty minutes (general laughter) what do you even do? ... I think just being left alone with yourself for like that long just to like think is just horrible.*

### **Theme 2: Digital Native Etiquette**

All participants highlighted that their smartphone use and habits were very much context dependent; that is, there were specific rules and etiquette that they adhered to, whether imposed by themselves, family, or friends, in addition to the more formal and visible phone use rules set by school and workplaces. A few examples of these

rules included muting conversations and putting phones on “night mode” or “do not disturb” in order to create barriers for when they wanted to be contacted. Respondents had clear conceptions of what they considered good and bad phone etiquette:

*Sammy: I think I can kind of usually understand people being on their phones in a group. I think the only time I don't make exceptions for it at all is one-to-one communication because if you're talking to someone face-to-face and you're the only other person you have kind of made a commitment to y'know talk to them and reciprocate what they're saying...*

*Skye: If it's just me and another person I never go on my phone... [we've] got this family rule if there's only two people in the car and you're sitting in the front you don't go on your phone you talk them.*

Most participants could vividly recall a time when a smartphone had presented a barrier or resulted in someone neglecting a face-to-face interaction. For many participants, they felt, having grown up with these technologies, that good smartphone “etiquette” (i.e., appropriate use in social situations) seemed mostly intuitive. However, several of the young people in these focus groups highlighted the tension felt between responding to a message on their phone in a timely manner and giving their attention to the people they were socializing with in person. Many participants felt that antisocial phone use was easy to spot in others and that their generation perhaps understood this delicate balance better than older or younger generations, such as their parents or siblings:

*Zara: My Mum takes longer to have conversations and if she's using her phone it almost takes up more of her attention than if I use my phone, though I think because she's less used to it... and definitely with my grandparents as well...*

*Logan: My sister can quite happily stay in bed all day and go on her phone and stuff, where I feel like that's what she's used to doing to pass the time and stuff like that. Because she was introduced to it at a younger age and it's already so much more developed now she's grown up as well.*

### **Theme 3: The Extended Self**

The multifaceted nature of smartphones allowed users to stay constantly connected to their social circles and meant that they could start friendships, build familiarity, and maintain social ties. Many participants addressed how using their phones allowed them to try communication styles or express themselves differently than they would in person:

*Skye: I mean everybody over a text or messenger app will always be really confident about all different types of stuff and they'll always seem like this... But I'm a quiet person in real life so ... it's almost like you've got two personalities in terms of your phone personality and your actual social personality.*

***Lorna:** Just you can be more confident you know it's not just something you're saying on the spot if you've got more time to construct what you want to say if you're quite nervous it can help you can spend a long time writing messages.*

***Taylor:** I think as well for us going to university next year, it's like we're not going to completely lose contact with people we've been friends with from high school.*

Not only did participants feel that their smartphones allowed them to build their relationships, but without their smartphone, many felt they would be “out of the loop”. Social isolation appeared to be the main concern if users had to be without their smartphone for an extended period of time. Smartphones therefore represented a way to stay connected not just to others, but to a wider social and cultural landscape:

***Frankie:** I think as well, you get a bit paranoid as well like I haven't got my phone... people are making plans and someone's text me to do something and you feel like you're being ignorant towards them but you haven't got a phone so you can't reply...*

***Logan:** You kind of feel that pressure to stay up to date and I feel like that anxiety stems from that fear of being left behind...*

As well as extending their social and cultural reach, some participants felt that their smartphones were an extension of their personality, somewhere to store memories in the form of messages, photos, and music:

***Skye:** I think the reason why people become so nervous is because that phone from the time you get it is pretty much you... it details everything so your phone number, your friends, it shows how you speak to people, your personality, it shows what you're like...*

***Frankie:** I think it stores a lot of memories because I think memories are in photographs and in text messages or even like the notes of your phones...*

The flip side of this particular experience was therefore that this made phones more valuable in terms of what they stored and could therefore be a cause of anxiety if lost or accessed by someone without permission.

#### **Theme 4: Defining Dependency (Sub-themes: Utility, Proximity)**

Participants discussed their views on the concepts of smartphone dependency and addiction, and the majority were conflicted as to whether the term “addiction” was appropriate in relation to smartphones; they felt that this term carried a level of stigma often associated with addiction to drugs or alcohol. Many reflected that their smartphones did not cause them harm or withdrawal symptoms and therefore addiction seemed like an inappropriate term, but many felt that excessive smartphone use could still be problematic:

**Sammy:** *I guess the only way you could decide whether it's an addiction or not is whether the good things about it outweigh the bad things about using them and whether people are aware of that. Because cars obviously they've done a lot of harm but overall they've probably helped more and but on the other hand cigarettes have probably done a lot more harm than good... I think for smartphones to be classified as an addiction or not you have to answer that question.*

**Zara:** *I'd say it like could be [addiction] though because if you think something like alcohol, like some people could have it... It's like despite harmful consequences so you could have a little bit of alcohol and it's not really that bad for you and people can manage it, but then you could use a phone so excessively that it becomes bad like you get withdrawal... so I don't think it's impossible... I don't necessarily think it happens all the time... I feel like it could be possible.*

As one participant highlighted, thinking of smartphone use in terms of “harms” and “withdrawal” was helpful to some of these young people when considering which terms they felt might be most appropriate for identifying problematic smartphone use.

### Utility and Proximity

Dependency on smartphones was seen by participants as a need for the practical uses of a smartphone in everyday life. Some participants likened their relationships to their smartphones as being the same as needing any useful service or technology (i.e., driving a car). When asked how their days would be different if they had to go without their smartphone for 48 hours, many individuals asked specific questions about whether they would still be able to use their iPad, laptop, music player, etc., indicating that phones were framed in terms of their multiple uses rather than as an attachment to the device itself:

**Eileen:** *It's not an addiction to the phone. It's because if you don't have the phone you are isolated that's just simply how it is... It's more like an addiction to being connected to everyone rather than it is the phone. Like it's not the handset it could be like anything as long as like you kept in touch with people...*

Dependency was also indirectly referred to by participants in terms of needing their phones in close proximity. Many participants felt they could resist checking or using their phones but preferred to have them in sight and view notifications so that they did not feel the need to constantly pull phones out of their bags or pockets:

**Skye:** *I dunno if anyone's noticed this but everybody in [college] will always have their phones on the desk. And just by having their phones on the desk for me, I do it but I pay less attention to it if I can see it than if it's in my pocket... If it's in my pocket I'll take it out and scroll through it.*

**Eileen:** *My phones always out on the desk but I never touch it. But if it's in my bag I'll take it out and put it on the desk but I don't even use it so I don't know why I do that.*

Although some participants were aware of the evidence of smartphones interfering with sleep, some reported that their phones helped them fall asleep (e.g., watching movies on their phone) and nearly all slept with their phones in the same room. Several participants acknowledged the contradiction of saying that being without their phones would not affect them but simultaneously needing them in the same room while they slept despite some of the known health risks:

***Skye:** I realized I am quite addicted to my phone because I fell asleep with it... and I've obviously dropped it [and] I've not known cause I've fallen asleep while holding it up and it fell down the side of the bed and went under the other boxes... and [at] about five o'clock in the morning because I couldn't find it, I just tore my room apart until I found it.*

***Logan:** Mine's really bad I normally fall asleep with mine in the bed like if I've got my headphones in I fall asleep and mine's still in my bed... I don't like doing it though because I wake up and won't know where it's gone cause it's gone flying off the bed or it's still lying there under the covers somewhere.*

## Discussion

In this study, we used responses from 13 high school students aged 16–18 years to gain a deeper understanding of adolescents' experiences of smartphones and their attitudes towards problematic smartphone use. The four themes outlined herein represent the different aspects of the participants' smartphone experiences; together, they provide answers to the following research questions:

**RQ1.** What experiences and attitudes characterize adolescents' relationships with their smartphones?

**RQ2.** Do users consider any aspect of their smartphone use to be problematic?

The first three themes identified capture large aspects of the respondents' relationships with their smartphones and succinctly answer the first research question of this study. The Comfort Bubble highlighted the safe space and relief provided by smartphone usage, whereas The Extended Self showed aspects of teenage smartphone use that related to maintaining relationships, staying in the loop, and having the ability to store memories and media important to the participants. Digital Native Etiquette was a somewhat surprising finding as a theme, as the respondents spoke openly and with great insight as to how they navigated the social rules of appropriate smartphone use. This theme also provided an answer to the second research question regarding how participants found strategies to safeguard themselves from problematic or excessive phone use. The last theme, Defining Dependency, also highlighted the views of participants regarding problematic smartphone use. Some potential problematic aspects for these respondents included the need to have their phones in close proximity even at night, anxiety at having misplaced their phones, or distraction by their phones when socializing in person.

The sense of comfort and escapism provided by smartphones appeared to help participants avoid unpleasant thoughts, emotions, or experiences by providing a variety of novel stimuli. Many of the respondents therefore seemed to highlight instances of “sensation seeking” (Zuckerman et al., 1964) in an attempt to distract themselves from unpleasant experiences, awkward social situations, or boredom. This avoidance is supported by previous work that found that individuals with mobile phones who experienced high levels of leisure boredom and sensation seeking are also more likely to experience symptoms such as feeling anxious or lost and seeking escapism (Leung, 2008). The risk of this type of behaviour becoming more problematic occurred when sensation seeking was paired with low perseverance and high levels of urgency, as users are much less likely to defer phone use, particularly in highly emotional situations (Billieux et al., 2008). This “attention impulsiveness” also means users are unable to focus on the task at hand, which is where the allure of smartphones can become potentially dangerous when users are distracted from activities such as driving (Billieux et al., 2007; Roberts et al., 2015). Although the sensation seeking reported by participants in this study was not particularly problematic, their experiences indicate that young people who are more impulsive could be less likely to defer their smartphone use, leading to more problematic or compulsive use.

The design of certain smartphone apps and processes can encourage compulsive behaviours through Pavlovian (Pavlov, 1960) positive reinforcement by using notifications and “likes” that affect the user’s reward-seeking behaviour (Lewis, 2017; Sherman et al., 2016). Techniques such as variable schedule reinforcement (Ferster & Skinner, 1957) also encourage compulsive checking: Users are rewarded with likes and notifications on an unpredictable schedule, and so return frequently to check for updates. The social endorsements offered by others through these smartphone platforms are particularly powerful motivators for young people who at this life stage highly value the opinion and validation of their peers (Sherman et al., 2016). Many of the participants identified the conflict between wanting to be constantly connected so as to not miss out while also trying to set healthy boundaries by using features such as night mode and do not disturb on their phones. This pressure to stay on top of or attend to their social world has been highlighted as one of the main frustrations for many smartphone users who are often bombarded with notifications and have to make multiple decisions on how and when to respond (Bombardi-Bragg, 2017). This is why many participants felt happier when they were able to see previews of notifications on their phone’s home screen as they came through and could then screen which they wished to respond to and which could wait. The rules and smartphone etiquette reported by participants in this study could potentially protect users from the negative affect or anxiety reported to be linked to the pressure to constantly check notifications (Kanjo et al., 2017). By using their phone in such a way to sift through urgent versus less important notifications, some of the participants in this study were able to then make priorities between their smartphone notifications and in-person obligations such as school work or time spent in person with family and friends.

Participants' experiences of problematic smartphone use largely related to antisocial phone use. Impulsive smartphone use therefore could be affected by negative social feedback from others, particularly the disapproval of close peers or family (Romer, 2010). The responses from participants were similar to those in a study by Kuss et al. (2018) in which individuals felt smartphone use could lead to feelings of rejection if they were ignored by a peer who was using their phone instead of engaging in conversation. This is particularly evident when individuals are not clear about what exactly they are being ignored for, as they cannot see what the other person is doing on their screen (Campbell & Park, 2008). This modern-day phenomenon is also known as "phubbing" (i.e., being snubbed by someone in favour of a phone; Chotpitayasunondh & Douglas, 2016) and has been shown to negatively affect relationship satisfaction, as well as individual well-being (Roberts & David, 2016). This type of antisocial smartphone use was clearly frustrating to participants and was seen as a break in social etiquette, yet the reasons underlying this use could be driven by a desire to engage in social interactions via the smartphone known as "hyper-natural monitoring" (Veissière & Stendel, 2018). Hyper-natural monitoring is the basic human need to monitor and be monitored by others and is closely linked with seeking social approval, which is even more important to teenagers as they navigate group dynamics and adolescent social hierarchies (Twenge, 2017). This need would explain the anxiety that participants described when having to decide whether to devote their time and energy to the person in front of them or through digital communication; it could be that individuals are simply seeking to meet the same social needs, and yet with smartphones, this is paradoxically done via an antisocial platform (Veissière & Stendel, 2018). Longitudinal survey evidence suggests that adolescents spend on average 7 hr less per week socializing in person than previous generations (Twenge, 2017), yet perhaps young people do not view digital and face-to-face socializing as dichotomous, but rather as complementary extensions of each other. Time spent away from screen media and increased in-person interactions have been shown to improve comprehension of emotional nonverbal cues in young children; therefore, high levels of smartphone use may have an impact on adolescents' social skills if not combined with face-to-face relationships (Uhls et al., 2014). These findings indicate that ensuring a range of socializing activities, including face-to-face interactions, could be a protective factor in preserving emotional connectedness and social relationships for adolescents; today's adolescents may also have more to teach older generations about smartphone etiquette regarding phubbing.

Many of the respondents felt that what is deemed as problematic use was context dependent. For instance, the time spent socializing via smartphones and receiving messages from contacts has been proven to increase positive affect, especially group chats, which help create a sense of community and belonging, whereas non-social features of smartphone use, such as scrolling and removing notifications, are more related to depression, anxiety, and negative affect (Elhai, Levine, Dvorak, & Hall, 2017; Kanjo et al., 2017). Throughout the focus group discussions, it was apparent that smartphones allow users to interact with social networking sites, which have been shown to increase the chances of a user developing a dependence or problematic smartphone use (Kwon et al., 2013). This may be due to a sense of fear of missing out,



which increases feelings of isolation and a dependence on the phone to feel connected (Dossey, 2014). Given the large scope of the focus group discussions, it was not possible to discuss social media habits in great detail, as that was not the primary focus of this study. However, this aspect of smartphone use is clearly significant in relation to social monitoring, social reward, and connection and warrants further investigation as another risk factor for problematic smartphone use (Kuss et al., 2018).

Although most participants were confident that they could go for periods of time without their smartphones, they also acknowledged that they would still use other technologies such as iPads or email in order to stay connected. They also preferred having their phone in close proximity and regularly slept with their phone in the same room. Two participants recounted tales of panic when they woke up in the middle of the night and could not find their smartphones after falling asleep with them while watching videos. This finding is also supported by previous research that highlighted the physiological anxiety experienced when smartphone access is restricted, such as increased heart rate and impacts on cognition (Cheever et al., 2014; Clayton et al., 2015). It may therefore be useful (as previously suggested by Walsh et al., 2010) to separate smartphone *use* from smartphone *involvement*, as the latter indicates that although the smartphone may not be in use, the user is very aware of the phone's location and the need to be in close proximity. This finding is particularly pertinent for those seeking to develop future scales and screening tools for smartphone dependency or addiction; as technology is advancing as quickly as these measures are being established, many of the existing scales have been criticized for missing the multifaceted and fluid nature of problematic smartphone use (Billieux et al., 2015). That is, although some users may have high levels of smartphone *use* for tasks such as revising or listening to music, the emotional demands associated with smartphone *involvement* are not as present (Harwood et al., 2014; Walsh et al., 2010). Equally, although some participants held strong views in which they questioned the existence of smartphone addiction, some of their anecdotes and responses about their behaviours indicated that there was still a need for close proximity to their phones and they reported feelings of anxiety when separated from them.

### **Strengths, Limitations, and Implications for Future Research and Practice**

This study was novel in its exploration of the experiences of adolescents (aged 16–18 years) towards smartphone use via focus groups. Teenagers still remain an under-researched demographic despite the fact that they are the most prevalent smartphone users and have grown up in many industrialized nations with these sophisticated devices (Twenge, 2017). The experiences of this generation of smartphone users continue to warrant research given that older generations who have adopted these technologies later in life are less likely to develop smartphone dependency (Van Deursen et al., 2015). The use of focus group discussions in this study allowed for a range of viewpoints to be both discussed and challenged at a level of detail that would not be possible via other methods such as questionnaires or structured interviews. This approach resulted in several unique findings, including the emotional and existential drivers behind smartphone dependency and the sensation

seeking that young people experience via their smartphones. This study further highlights the need for future measures of smartphone dependency in order to differentiate between smartphone use and smartphone involvement (Walsh et al., 2010), as well as to examine the specific types of activities that younger smartphone users spend the most time engaging in (Billieux et al., 2015; Elhai, Levine, Dvorak, & Hall, 2017). For example, in future measures of smartphone dependency or related behavioural addiction(s), investigators may wish to incorporate some of the issues highlighted in this study, such as *non-social phone use* (i.e., scrolling and notification checking) or measures of *antisocial smartphone use* (such as phubbing) when in the company of others.

Young people should be encouraged by families, friends, and schools to monitor their use independently through apps that limit screen time because self-monitoring features that have a social accountability component have higher rates of success than do those without such a component (Ko et al., 2015). Young people may also benefit from healthy self-monitoring habits such as set times at which sounds and notifications are switched off in order to combat the unpredictable rewards and make phone use less chaotic and more intentional (Alter 2017; Veissière & Stendel, 2018). An agreement on social rules by parents and schools can minimize the detrimental impact of smartphones on relationships and productivity; however, older adolescents, such as the participants in this study, clearly value their independence and take responsibility for their smartphone use by using methods that are age appropriate (outlined further in the recommendations by Blum-Ross & Livingstone, 2016).

A limitation of focus group discussions is that the presence of the researcher and other participants can potentially result in self-report bias and pressure to conform to group consensus (Dimitroff et al., 2005; Fusch & Ness, 2015). However, an open and supportive group culture was established, and all of the participants reflected in their responses that they were comfortable in volunteering their views and experiences and disagreeing with others. Future studies could use individual interviews in which participants have a greater degree of anonymity (i.e., via telephone) in order to explore the initial themes presented in the findings of this study. The convenience sampling methods used for this study and the homogeneous demographic of participants (white, state school students from similar socioeconomic backgrounds) should be acknowledged and therefore limits generalization. Future studies should seek to include a diverse range of young people, particularly from different socioeconomic backgrounds and from other industrialized countries in order to explore the differences and similarities between teenagers across nations and cultures. Further qualitative studies with adolescents from different backgrounds are therefore needed to establish potentially common experiences and particularly to ensure the reliability and applicability of any clinical or subclinical screening and assessment tools.

## **Conclusion**

This study provides a range of viewpoints from adolescents about their smartphone usage and experiences, including problematic and antisocial use. Four themes were

created that captured the experiences of participants: The Comfort Bubble, Digital Native Etiquette, The Extended Self, and Defining Dependency. The responses of the young people in this study highlight that smartphones are an integral part of modern-day living and therefore phone use should be viewed in terms of how and why young people are using their phones as opposed to how much they are using them. An unhealthy dependency on smartphones could therefore potentially be measured with scales that incorporate measures of sensation seeking, need for close proximity, and antisocial phone use. The participants in this study also outlined several habits and social rules that helped minimize the risks of addiction-like behaviours such as using in-built phone features and apps to control when they could be contacted or receive notifications. This study adds rich and valuable qualitative data to the experiences of smartphone use and smartphone dependency and is the first to do so with an adolescent cohort and focus group discussions.

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