"My Smartphone Is an Extension of Myself":

A Holistic Qualitative Exploration of the Impact of Using a Smartphone

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Abstract

A total of 6 billion people worldwide will use smartphones in 2020 (Jonsson et al., 2017). The devices pose convenient solutions for leisure and work-related activities (Kuss, 2017). However, psychometric and addiction-based guidelines increasingly align smartphone overuse with technological addictions (Billieux et al., 2015). A more holistic exploration of smartphone use might help to highlight how everyday use interacts with or underpins more addictive forms of behaviors. This study aimed to explore in-depth experiences of smartphone use to understand from a holistic perspective what the perceptions and experiences of the devices are to smartphone users using a qualitative focus group study (n = 21; 11 women). Data were analyzed using the constructivist grounded theory. Results indicated that smartphones were entwined with users' lives, as they formed an extension of the self. Subcategories highlighted that the devices hold value by externalizing identity, providing constant connectivity, mediating intimacy, authenticating experiences, and forfeiting agency. In conclusion, the usability of the smartphone may create an interactive relationship with the sense of self. Close relationships with smartphones appear to shape interpersonal relationships. In addition, participants held an expectation that the user has agency over their actions, which is at odds with evidence of nonautonomous, compulsive behaviors. Regarding the study's public significance, this false perception of control may pose challenges for interventions that aim to reduce problematic smartphone use. Further research should contrast user perceptions using real-time smartphone data to understand the degree of true insight users have over their own behaviors.

Keywords: interpersonal communication, social media, smartphone, social identity, qualitative

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In 2020, around 6.1 billion people will be smartphone users (Jonsson et al., 2017). In North America, Great Britain, and Canada, 77%, 70%, and 66% of the adult population use smartphones, respectively (Canadian Radio-Television and Telecommunications Commission, 2016; Office for National Statistics, 2017a; Pew Research Center, 2017). Technology advances have prompted an explosive growth in the functionality of mobile phones. By 2016, smartphones and tablets had become the primary technology used to access the internet (StatCounter Global Stats, 2016). Smartphone users have become regular online consumers of news, media, shopping, and social networking through their devices (Office for National Statistics, 2017b). British Telecommunications regulators have called the United Kingdom a "smartphone society" (Ofcom, 2017). Thus, there is increasing evidence that smartphones may have a profound impact on daily activities and everyday life.

Smartphones offer access to a landscape of information, entertainment, and communication applications and provide beneficial opportunities for society. Psychological research has paid particular attention to the communicative and social affordances of smartphones. From the perspective of the *stimulation hypothesis*, smartphone applications (apps) and social media allow individuals to both connect with existing friends and family (Aharony & Gazit, 2016; Valkenburg & Peter, 2007) and form new relationships with individuals belonging to different social groups through online social media and networks (Aretz et al., 2010). Email access and "hands free" calling can support working practices outside of traditional working settings, thus increasing productivity (Mellner, 2016). Smartphone communication can be versatile, allowing messages, images, audio, and visual media to be shared with other individuals, within group conversation, and uploaded within select digital communities. Further, in a study of teenagers with chronic illness, online communication via smartphones increased individuals' ability to communicate with more individuals who lived in diverse locations and came from differing

social groups (van der Velden & El Emam, 2013). Thus, smartphone, and social media apps in particular,

can increase social capital and psychosocial support (Ellison et al., 2007; Park et al., 2013).

As an alternative to the stimulation hypothesis, internet researchers and theorists have

expressed concerns about the potential for smartphones to influence society negatively by facilitating

engagement in problematic behaviors (Kuss, 2017). Valkenburg and Peter (2007) referred to this as a

displacement hypothesis, whereby the internet displaces offline social and identity benefits. For

instance, individuals can become preoccupied with updating and maintaining social media profiles,

developing a greater reliance on the weak ties formed online and reducing time spent interacting offline

with friends and family (Caplan & High, 2006; Kraut et al., 1998; J.-H. Kwon, 2012). More recent

evidence shows that monitoring other social media users' updates can cause anxiety and an experience

referred to as the "fear of missing out" (Przybylski et al., 2013). Similarly, there has been increasing

attention to the phenomenon of "nomophobia," or the discomfort and anxiety in the absence of a

smartphone (Han et al., 2017). The fear of missing out and nomophobia are believed to be reinforced by

the constant on-the-go access of smartphone technology and the proliferation of social media

applications (Buglass et al., 2017; Kuss & Griffiths, 2017).

Moreover, updates, notifications, reminders, and similar features of the device may exacerbate

a preoccupation with the apps hosted within the smartphone (Yoon et al., 2014). This may result in

individuals feeling obliged to check and respond to the device (Kanjo et al., 2017; Kuss, Harkin, et al.,

2018). Smartphones impact individuals' ability to separate work from home life, contributing to work

burnout and detrimentally impacting well-being (Derks & Bakker, 2014; Mellner, 2016; Reinke &

Chamorro-Premuzic, 2014). Such negative impacts on personal, professional, and social spheres add

growing credence to the argument that negative emerging smartphone experiences are indicative of

problematic use and behavioral addictions (Billieux et al., 2015).

Accordingly, in line with the components model of addictions (Griffiths, 2005), smartphone

addiction may derive as a consequence of biopsychosocial processes akin to those experienced in

substance-related addictions, including mood modification, salience, tolerance, withdrawal, relapse, and

conflict. Smartphone addiction is often discussed in terms of overuse, pathological use, obsessive use,

symptoms of impulsivity, and lack of control (Beranuy et al., 2009; Billieux et al., 2008; M. Kwon et al.,

2013). A comparison of smartphone addiction in European countries has revealed that individuals from

Western European countries report higher symptoms of smartphone addiction when compared with

Eastern European populations, with 3.9%, 3.5%, and 3.4% of the samples in Belgium, the United

Kingdom, and France, respectively, reporting the maximum level of smartphone addiction (Lopez-

Fernandez et al., 2017). Studies provide a valuable overview of addiction on consistent measures of

smartphone use in large cross-sectional samples (e.g., Lopez-Fernandez et al., 2017).

However, measures used to assess smartphone addiction are often developed based on

definitions of substance and gambling addictions (Billieux et al., 2015; Kuss, Kanjo, et al., 2018; M. Kwon

et al., 2013). Conversely, as smartphones become intimately integrated into many aspects of everyday

lives (Kuss, 2017), the line between "overuse" and "necessity" may become blurred. It has been

suggested that smartphone technology and social media have become "extensions of man" in the 21st

century, as they support interpersonal connections via our behavior, thinking, and ways of relating

(Kuss, 2017).

Despite the rapid expansion of smartphone ownership worldwide, there is limited holistic

oversight of how the various uses impact lived experience. Although researchers have observed

smartphones integrating with social relations, cognition, and well-being (Baker & Algorta, 2016; Best et

al., 2014; Kuss, 2017), it is valuable to reflect on the overarching experience this produces for an

individual using the technology in various domains of life. After all, if individuals perceive smartphones

as beneficial for their lives, they may use smartphones in spite of potential problematic impacts their

use can have on cognition and well-being. Thus, to gain a nuanced oversight of the significance of

smartphones to individuals, we must understand the user experience in everyday life and examine their judgments over their use in all pertinent contexts. The purely psychometric approach in the prevailing smartphone literature may overlook the holistic impact of smartphones in the lives of modern users, which is a gap in knowledge the current study aims to address. Accordingly, this qualitative study explores user experiences of smartphones and the perceived impacts this use has on everyday lives.

Method

Study Design

This qualitative group interview study was guided by the constructivist grounded theory. Qualitative research allows in-depth insight into underexplored phenomena (Denzin & Lincoln, 2011). Focus groups encourage participants to describe perceptions of shared phenomena (Charmaz, 2014), and are therefore a time-efficient method for eliciting insights and understandings into smartphone experiences. We used constructivist grounded theory analysis because it allowed analytical consideration of how shared meaning concerning smartphones is constructed by individuals and within focus groups (Bryant & Charmaz, 2007; Charmaz, 2014).

Participants

We shared invitations to participate in a focus group study via a mailing list of smartphone users, generated following a quantitative project investigating smartphone use (Pivetta et al., 2019). We created this mailing list via recruitment both online (research recruitment websites, online forums, Twitter, Facebook, and online student portals) and offline (posters in university communal areas and cafes). The mailing list contained individuals who consented to be contacted for a face-to-face focus group. Individuals were eligible to participate in a focus group if they owned a smartphone and were available to attend the focus group in person.

Three focus groups were attended by a total of 21 individuals (Group 1: $n = 9$, Group 2: $n = 6$, and Group 3: $n = 6$), with each session lasting an average of 95 min (range = 93–96). Average participant

age was 26 years (*SD* = 8.86, range = 19–47). Participants were highly educated cisgender men (*n* = 10)

and women (*n* = 11), with all participants having at least a vocational education and 43% of participants

having an education beyond the postgraduate degree level. A total of 14 participants were students, and

seven participants were members of staff at the university. Students included undergraduate, master's,

and doctoral students, and the staff roles included research assistant, teaching associate, lecturer, and

academic professor. To ensure participants could not be identified, the roles have been simplified in the

participant demographic table (Table 1) as either student or staff.

Procedure

We held three focus groups in university rooms designed for qualitative research and recorded

the sessions using dictaphones. We conducted all focus groups within a 6-week period, scheduled at

intervals to allow analysis of focus group data between each session, in accordance with theoretical

sampling principles. Thus, we transcribed data as the sessions were held, and the preliminary analyses

informed subsequent focus group discussions. We facilitated each focus group, and all of us were

experienced qualitative researchers.

We scheduled the focus groups sessions to last 90 min. They were semistructured to facilitate

discussion. The session began with an ice-breaker task in which participants discussed most favored and

least favored apps. Following this, we encouraged participants to discuss their personal experiences and

perceptions of smartphones using questions exemplified in Table 2. Focus group discussions were

supported by a short slideshow of six images portraying smartphone use. Visual aids are a useful focus

group tool to elicit in-depth data in comparison with simple questions (Wilkinson, 2006). Images used in

this study contained no text, and we selected them to portray different settings of smartphone use. The

images were used to facilitate group coherence, by providing a focused topic to discuss and thereby gain

depth by greater group cohesion. Thus, prompts included "What do you think this image portrays?" and

"How do you feel about this?"

Ethics

We obtained informed consent from all participants included in the study. To assure

participants' confidentiality and anonymity, we removed all identifying information from the transcripts,

and we referred to participants according to identification codes. These codes included the unique

participant (P) and the focus group (FG) number in which they participated (e.g., P1, FG1), which are

used in the Findings section to identify the source of quotations. This study received ethical approval

from the host institution's ethics committee.

Data Analysis

We audio-recorded the focus group interviews and transcribed them ourselves. We then input

data into the data analysis software NVivo ([https://www.qsrinternational.com/nvivo-qualitative-data-](https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home)

[analysis-software/home](https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home)), which hosts qualitative data to support the organization of analysis. We

conducted data analysis concurrently as focus groups were scheduled and conducted (Bryant &

Charmaz, 2007). For analysis, we followed a systematic coding strategy informed by principles of the

constructivist grounded theory (Charmaz, 2014). Initially, we openly coded transcripts line by line using

NVivo, paying attention to the construction of smartphones by individuals and how group conversations

shaped perceptions and reflections of smartphone use in the lives of users. Second, we produced

focused codes by drawing together previously identified open codes with common logical

underpinnings. Third, we placed data in a relational diagram and reviewed it to ensure the findings were

grounded in the data.

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Results

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The focus groups produced lively discussions about the integration of smartphones in

participants' lives. Grounded theory analysis revealed an overarching category labeled "an extension of

the self," which represented how smartphones influence participants' lives. The concept of the

smartphone as an extension of the self underpinned the further five categories in the data. Therefore,

these five categories were considered subordinate categories, which defined different aspects of

participants' smartphone use. The structure of the categories is reflected in Figure 1 and is described in

the following text.

An Extension of the Self

Most participants considered smartphones as integral to their daily lives. Smartphones unlocked

access to a wide range of features and applications, such as alarms, calendars, email, banking,

communication, and social media. These apps transformed ordinary, daily experiences. For instance,

smartphones were used by individuals on a commute to work or university. Apps aided traveling with

updates on public transport status and route plans. Thus, most participants felt that they were

stimulating and educating themselves in a setting, which they believed they would be disengaged in,

such as when sitting on a public transport journey. As Participant 6 in Focus Group 3 noted, smartphone

apps gave them access to information they might not otherwise have, such as engaging with breaking

news, literature, games, or friends. Therefore, the groups believed that smartphones extended what

individuals were capable of achieving without portable smartphone technology. Consequently,

smartphones were commonly kept within reach and used throughout the day. This regular and

consistent presence made smartphones more than an addition to daily lives. Smartphones were

conceptualized as a part of or an extension of one's body, as exemplified by the following quotes.

P5: It is basically like a manmade extra sense for you. You can, you know, [know] what is going

on. You can be completely connected in the same way you can kind of [use your senses], you

have hearing, sight, taste, smell, touch. You have your phone. It is really, it is like an extra sense.

It might sound absurd, but it really is. (FG2)

P4: I will admit I am probably one of those people. I am constantly [on it]. If I am just at home, I

will have it in my hand. I don't know why but, I just do. It is weird, like it has become part of you

almost. It really is like an extended part of you. But just in a device form I guess. (FG2)

In each focus group, several individuals had attempted to reduce the time and reliance they had

on their smartphones. Participants deleted apps that they perceived as time consuming, including social

media and gaming apps. Similarly, several participants limited the hours or places in which they used

their phone. For instance, phones were prohibited before bedtime or in restaurants. Each of the

participants remarked on the difficulty and restraint required to reduce their smartphone use. Indeed,

changes in smartphone behaviors were described as temporary, and individuals expected to return to

regular smartphone use. Nonetheless, several participants noted that they felt a sense of freedom by

removing the influence of the smartphone or apps from their lives. Thus, the exertion required to

reduce smartphone interactions indicated the extensive influences the devices have on individuals'

cognitions and routines.

> P6: I'm a compulsive checker because I check the whole time. I'm using it a lot, so I'm a prime
>
> example of constant checking . . . So I'm, I'm really trying to, to control it in a way and not to um.
>
> So it can be very liberating as well, not to have it, but if I don't have it I feel naked. (FG3)
>
> P4: Now that we've gone three weeks without it, it is quite freeing not having a social media
>
> account. But I'll admit I've never ever gone, definitely not a month, without social media since I
>
> was like 11, 12. That's bad, and that's 8 years of just constant social media all day every day
>
> checking your phone and this is the first time I've gone without it. I think I'll fall back into it.
>
> (FG2)

The concept of the smartphone as an extension of the self was present in most participants'

perceptions of the device. Thus, five distinct categories were constructed to explain how this extension

impacted individuals' lives and daily interactions, representing a holistic view of smartphone use. These

five categories were considered subordinate categories to the core category. The subordinate categories

were labeled "externalized identity," "constant connectivity," "mediating intimacy," "authenticating

experiences," and "forfeiting agency."

Externalized Identity

Many participants personalized their smartphones to suit their identities or host a representation of themselves. Phones accumulated information, pictures, and music that were relatively unique to everyone. In Focus Group 2, participants explained that by installing and deleting apps that suited their lifestyles, phones reflected their likes and dislikes. This seemed to increase their affinity and connection to their phones. Similarly, several participants chose images for the smartphone background that were significant to themselves, their relationships, their family, or their sense of humor. Social media apps were further described as ones that allowed individuals to present their character to the world through their device. The smartphone was integral to managing this online persona, as individuals could project their identity across many apps, throughout the day, from a single device.

P6: Do you ever go on someone else's phone and just look through their home screen and stuff? See how it is different to yours, "Oh, you have got that," or that is not in a normal place, why is that there. Press something and it is not like your thing. It is really weird how you just—

P4: Yes, it is like, it really is like an extended part of you. But, just in a device form I guess. (FG2)

Across focus groups, participants debated whether smartphones reflected an honest account of the individuals' identity. Notably, secondary and often idealized versions of their friends and family were observed within smartphone apps, particularly on social media. Moreover, participants were concerned about how an inaccurate portrayal could affect other social media users. Several participants felt in competition with other online social profiles. Apps such as Instagram presented idealized body images, which both male and female participants compared their bodies with. This raised anxiety when individuals considered how their own profiles, and thus their identity, might be judged online.

P8: Yes so, they like kind of dichotomize our lives into like, the digital self and the real self. (FG1)

P5: If you're going through there [for] 5 hours a day looking at your friends, you want to make sure that what you put out there is something that people aren't going to judge you on. (FG2)

Constant Connectivity

Instant communication and social interactions were central to participants' smartphone use. Smartphones allowed instantaneous contact in multiple forms: by call, by text, or over social media. This gave participants the impression that they were never alone. For several participants, this helped to combat periods of loneliness. Related to this, participants valued that smartphones enabled them to keep in touch with family and friends living at a geographical distance. For instance, in Focus Group 3, Participant 6 had relocated to the United Kingdom with her children. For this participant, smartphone apps allowed her children to communicate with their friends from home. In turn, the participant believed that she could better support her children's adjustment by providing smartphones that allowed regular international communication.

> P6: I think it does serve a very big function, so for example, I was talking about my children . . . They had to adjust, but I think part of what kept them going and made it easier for them was the fact that they could keep in touch, so they almost felt they hadn't gone . . . The fact that they could keep, uh, could be in constant contact, could be constantly be online with their friends. I remember my daughter saying "Mom, you know, you brought us here, y'know, at least let us use our phones because this is the way we keep in touch." (FG3)

> P9: [You are] never alone with a phone. (FG1)

Alternatively, participants discussed work-based communication in a more negative frame. Instant communication and constant connection over email raised concerns that individuals would be expected to communicate out of working hours. This could be overwhelming, and yet accessing work emails, documents, and communications out of hours was described as an easy habit to get into. Our participants were from an academic background and expressed concern that their working lifestyles could mediate the overuse of smartphones at inappropriate times. As such, the constant connectivity of smartphones was presented as a motive for regular smartphone use while also presenting a rising

challenge in workplace contexts.

> P1: I think if you didn't have a phone it would be quite hard to have that, like, instant
>
> communication. So I think for me that's what my smartphone is, it's my way of people
>
> contacting me and me contacting other people, just like that [snaps fingers]. (FG3)
>
> P1: It gives you the ability to do work outside of work. It is very easy to kind of get into just
>
> checking emails in the middle of the night, you know. So it may, it extends the working hours, I
>
> think. And erm, maybe that person was checking their email when they should have been
>
> enjoying themselves watching the movie or something like that. It is a constant thing. And it is a
>
> never-ending thing. So you, you know, you have never quite done enough for the week. So it is
>
> very easy to, you know, be doing work outside of hours, and academics tend to work outside of
>
> hours anyway. So this just erm, unfortunately encourages us to do that. (FG1)

Mediating Intimacy

Smartphone communication, for most participants, did not replace or outweigh face-to-face communication. However, there was consensus that smartphones had an increasing impact on offline interactions. For some participants, smartphone communication supplemented offline interactions. Smartphone apps allowed individuals to keep abreast of their friends' well-being and activities when they would otherwise be unable to communicate with or visit them. In addition, several participants regularly viewed smartphones when with friends and partners. This had a mixed reception among focus group participants. The more positive reflections showed that smartphones facilitated intimacy between couples. Smartphone use, such as playing games or reviewing news together in an evening, was an activity that brought individuals closer together. Similarly, participants observed positive emotional reactions to messages and images shared over social media, such as Participant 1's grandmother receiving supportive 50th anniversary messages on Facebook.

> P4: We are quite happy to sit like, when we are at home, we will sit next to each other, both just

playing games or Reddit or whatever. And it, it doesn't feel like it is a bad thing. Because like, sometimes we will, we'll be like, oh look at this funny thing like. Because you are still thinking of the other person. You are not, it is not like this is solely for me. (FG1)

P1: My grandma had a 50th anniversary and my mum put up [on Facebook] this long paragraph with nice pictures, and she spent loads of time writing it . . . Then my grandma read it . . . and my grandma started crying . . . It's, there is two sides to the coin on the whole showing intimacy online. If you do something special like that then, it's a good thing. (FG2)

On the other hand, some participants perceived the smartphone as an unwelcome third person in their relationships. All three focus groups discussed instances where notifications had interrupted conversation among romantic partners or friends. This appeared to be the most minor and common intervention of a smartphone in interpersonal relationships. Several participants had reacted to their partner's smartphone use with jealousy. The devices were described as stealing the partner's attention from their own intimate moments, such as in a restaurant or when watching TV together. In the most extreme instances, participants explained that the device and particularly social apps could enable and mediate jealousy and conflict in relationships. This conflict was characterized by monitoring the partner's interactions with others on social media, or "cyberstalking" (P6, FG3).

P5: I mean my friend gets really miserable when her boyfriend likes other girls' pictures [on Instagram] [sounds of group agreement], like it really winds her up, like I think he does it to wind her up as well. (FG1)

P6: There's also sort of a triangulation there, it's like as if it's, um you know it's a couple and there is um, the phone. (FG3)

P4: The phone is a third person. (FG3)

P6: Yes, there's sort of, I mean it's uh like a mediator in their relationship . . . It's strange because there's sort of a lack of intimacy because there's just, somebody else with them. And

that's the phone. (FG3)

Authenticating Experiences

Smartphones impacted participants' perceptions of the world around them. This was sometimes discussed jovially, in a mocking reflection of friends or partners using their phones. Participants joked that taking photos and sharing experiences on social media made the experiences more real or authentic. Similarly, relationships were not recognized unless they were "officially" stated on social media apps. However, despite the comical tone of these comments, aspects of smartphone apps impacted individuals' thoughts and feelings. In Focus Group 2, Participant 4 highlighted that, by following fashion accounts on Instagram, his sense of style and the clothes he wore altered. In Focus Group 3, Participant 2 explained that watching comedic videos and discovering humorous community groups through apps shaped what she found amusing and jokes she shared offline. Thus, participants showed an awareness that smartphone apps molded their tastes and perceptions.

P8: I feel that people need to take the picture of it [food or activity] because they need to inject themselves into this digital realm and do some talking to the people. I feel that it doesn't quite exist unless it has been posted. (FG1)

P2: It kind of changes your sense of humor as well, like molds it, so same way TV would if you use it as a source of entertainment and if you create friendship groups based on common interests. You all have a shared sense of humor and you'll find friends who share that sense of humor on social media . . . you all have like one common joke and you want to share these senses of humor and then that not only affects your online persona but also genuinely your actual character. (FG2)

Smartphones implicitly affected how participants moved through the world. Having a smartphone accessible made individuals feel safe in risky situations, such as when walking alone at night. The smartphone could be used to call for help when unsafe. Furthermore, smartphones appeared

to alter some participants' experience of time. Many participants actively chose to use their phones to

"kill time" when they were bored. This could be when at home in an evening or when catching spare

moments during the day, such as when walking in the street. However, many participants commented

that they were surprised at the amount of time they lost using smartphones. Furthermore, this was the

most common reason individuals tried to control or reduce the time they spent using phones.

>P3: You're just so used to, like that little bit of spare time . . . walking to a place you're like oh, I'll
>
>just quickly check my phone now, if you're, yeah, like going from one lecture to another, it's just
>
>easy to get it out and check, I suppose, like you're used to doing it in your spare little bit of time
>
>you get in the day. (FG3)
>
>P6: Sometimes like, my mechanism would be y'know I totally take it out sometimes so I don't
>
>know what has happened, might have been a bomb has fallen next to me and I don't know
>
>about it because I prefer not to touch it because if I touch it, I know I'll lose time. (FG3)

Forfeiting Agency

Focus groups discussed whether individuals had control and responsibility for their smartphone

actions. Most participants emphasized that they had personal autonomy with their smartphones;

problematic actions were the fault of individuals who had a lack of control over their behaviors. For

instance, asocial behaviors, such as using smartphones during lectures and face-to-face conversations,

reflected poorly on the individual. Similarly, there was group consensus that smartphone use while

driving or crossing the road demonstrated a lack of responsibility from the smartphone user. In Focus

Group 1, Participant 7 raised the possibility of developing smartphone technology to prevent use in

dangerous situations. Specifically, smartphones could be disabled within range of a car. However, the

group discussion concluded that agency should sit within the hands of the individual.

>P9: [Automatically disabling smartphones in cars] is too controlling. It is, that is moving civil
>
>liberties again. What if you are a passenger? What if you need to access something?

P1: Isn't that about taking the control out of our hands. So if you want your phone off when you

go into your car there is erm, a special thing that is called an "off button." And you can push it.

(FG1)

Despite discussion of smartphone agency, participants across all focus groups referred to

instances where they automatically or inadvertently used their smartphones. Most participants

described the Facebook app as one that they looked at or checked without active purpose. Similarly,

individuals described itching to check notifications, particularly in contexts where they were bored or

disinterested, such as at work or in the library. Through discussions of both habitual and purposeful

smartphone use, Participant 9 in Focus Group 1 suggested that the line between the two behaviors

could be blurred. If smartphones and their behaviors reflected agency and responsibility, then

uncontrolled behaviors could reflect a pathological lack of agency with smartphone use.

P9: What if someone feels compelled to, like, reply to people on like social media. Again, where

is the line between? I agree, usually it is the person's fault. But when does one behavior become

pathological? Or become a problem for them where they can't put things down, you know. You

know how engaging mobiles are, and you know you can be on apps or whatever, and you can be

lost in the zone. So definitely there is a, a role of erm, someone's own action and volition. (FG1)

Discussion

This study aimed to explore user experiences of smartphones and the impacts these activities

were perceived to have on individuals' lives. This holistic insight revealed ways that smartphones were

entwined with everyday life. Smartphones impacted the sense of self, social and romantic relationships,

agency, and experienced authenticity of the physical world. These findings extend previous problematic

use perspectives to incorporate the features that are valued by individuals (Baker & Algorta, 2016; Best

et al., 2014; Kuss, Harkin, et al., 2018). Moreover, this study confirms theoretical proposals that

smartphones have an extensive influence over ordinary lives and behaviors (Billieux, 2012), offering

stimulation but at the same time contributing to displacement and problematic behaviors (Valkenburg &

Peter, 2007). In the following discussion, we consider the significance of smartphones impacting

identity, social communication, interpersonal relationships, and smartphone agency. We consider the

extent to which our findings provide support for the stimulation theories versus displacement and

problematic device use perspectives and the potential implications for future research.

   First, smartphones channeled the participants' sense of self. This extends qualitative evidence

by Fullwood et al. (2017), who highlighted that smartphones can take on an anthropomorphic persona

in the eyes of their owners. In the present study, self-presentation was achieved through multiple

smartphone behaviors, including selective use of images on the smartphone background and in social

media apps and by retaining apps that represented the users' best interests. From the perspective of the

stimulation theory of technology use, disclosing personal information online may offer a positive form of

self-expression, which can work to reduce social anxiety and enhance well-being (Valkenburg & Peter,

2007, 2009). On the other hand, gaming literature suggests that individuals with lower psychological

well-being are more likely to create digital selves based on ideal identities and subsequently to rate their

digital identity as more favorable to their own (Bessière et al., 2007). Thus, for individuals with poor self-

esteem, it may be that the identity created and presented through multiple channels in smartphone

apps displaces an individual's self-esteem in the offline world. Klimmt et al. (2009) theorized that a

media environment with greater opportunities to manipulate the presentation of an identity has the

greatest impact on lived identity because this environment allows individuals to simulate the cognitions

of the idealized self and to alter their own self-concept (Klimmt et al., 2010; Przybylski et al., 2012). Thus

far, researchers investigating the effect of smartphone apps on self-esteem have considered apps only

in isolation. Therefore, it may be prudent to quantify smartphone impact on self-presentation through

multiple apps, particularly when examining self-esteem patterns in relation to device use.

   Second, the findings of this study have illuminated the double-edged nature of increased social

smartphone communication vis-à-vis the stimulation versus displacement theories (Grinols & Rajesh, 2014; Johnston et al., 2015; Nguyen et al., 2015; Valkenburg & Peter, 2007; Yun et al., 2012). On the one hand, the smartphone stimulates existing social networks by connecting individuals separated by geographical distance (Madianou & Miller, 2011). This also provides a regulated environment in which users can craft messages and maintain relationships where commitments or mental health difficulties can otherwise impact relationship maintenance (Simoncic et al., 2014). On the other hand, participants in the present study reported experiences of smartphone intrusion and overuse through constant connectivity, particularly where connectivity concerned work-related activity. This finding is in line with proponents of the present–absent paradox and the freeing–enslaving paradox (David & Roberts, 2017; Turkle, 2017). That is, individuals are burdened by obligations to check and respond to the device (Kanjo et al., 2017; Kuss, Kanjo, et al., 2018), which may lead to work burnout, detrimentally impacting well-being (Derks & Bakker, 2014; Mellner, 2016; Reinke & Chamorro-Premuzic, 2014) and leading to displacement (Valkenburg & Peter, 2007). This may explain why smartphone overuse has been linked to depression, increased stress, and lowered self-esteem (Elhai et al., 2017; Lup et al., 2015). The present study adds credence to the argument that it is the nature and quality of constant communication that determines problematic communication patterns of behavior (Davila et al., 2012). Evidence from the present study suggests that, for a holistic understanding of the mental health impact of smartphone addiction, both the stimulation and displacement theories should be considered.

Third, the present study found that the influence of smartphones extended to participants' personal and romantic relationships. A multitude of features available on the smartphone can support and maintain intimacy with romantic partners (Krasnova et al., 2016; McCormack, 2015). This supports a key tenet of the stimulation theory of technology use, as the smartphone can act as a stimulant for enhancing existing relationships (Valkenburg & Peter, 2009). Moreover, the social affordances of smartphones are valued by their users, with a U.S. survey highlighting that 83% of adolescent users

reported feeling more connected to their friends via social media (Lenhart et al., 2015). However, this

study provided insight into asocial patterns of use that have recently been linked to evidence of

problematic and compulsive behaviors (Billieux et al., 2015; Kuss, Kanjo, et al., 2018). Individuals can

come into conflict over smartphone use in a relationship, feeling rejected if they are ignored in

preference for a smartphone (David & Roberts, 2017). Moreover, instances of cyberstalking were

reported in this study. Cyberstalking behaviors have been linked to narcissistic personality in men

(Ménard & Pincus, 2012) and a motivation to obtain intimacy in women (Purcell et al., 2001, 2010).

Thus, stalking and cyberstalking have both been connected to negative relationship experiences with

individuals narcissistically wounded by a need for control or experiencing anger (Ménard & Pincus,

2012). The nature of the romantic relationship could be a key predictor of problematic or positive

smartphone behaviors within a relationship. Given the nature of this small-scale qualitative study, it

would be prudent for future studies to quantitatively examine the impact of relationship styles on

problematic smartphone behaviors. With this evidence, future therapeutic interventions aimed at

reducing problematic smartphone behavior may need to focus on smartphone use and relationship

quality to successfully address the development of problematic behaviors.

Finally, participants revealed a tension regarding having agency over their smartphone actions

while performing behaviors that were automatic and potentially compulsive. Habitual behaviors

described in the focus groups matched criteria for behavioral addiction (Griffiths, 1995, 2005).

Smartphones were highly salient to participants in this study. Focus group discussions indicated a

tolerance for behaviors with negative impacts on social relationships. Participants experienced

unpleasant feelings when they withdrew from apps or their smartphone. Many relapsed after periods of

abstinence. Finally, smartphones produced conflict in some relationships and friendships. This aligns

with Griffiths's (2005) six key indicators of behavioral addictions. Furthermore, expectations of agency

might reveal implications for how individuals seek help to adapt or alter habitual behaviors. Studies have

suggested that habitual behaviors, such as smartphone checking, may be resistant to change, and self-motivation may not be enough to change more obsessive behaviors (Oulasvirta et al., 2012). There has been a growing interest in interventions designed to reduce compulsive smartphone behaviors (Kim, 2013). The dynamic role of individual agency should be explored in the context of such interventions.

Limitations

This study has provided in-depth insight into the impact of smartphone use, holistically accounting for impacts that are appreciated by individuals and elements that are perceived as problematic. A key limitation is the small, qualitative nature of this study, in addition to the source of the study sample. The qualitative nature of the study means that the results may not be generalizable to other populations, particularly individuals who may have different expectations or needs from their smartphones, and thus different holistic experiences of the devices. It is worth reflecting on the nature of the present sample being drawn from an academic setting; our participants were highly educated, drawn from a workplace setting in which smartphones are prevalent in both working and personal life. This follows the direction of the field, as smartphone use is overwhelmingly studied in adolescent and student samples (Vahedi & Saiphoo, 2018), often in conjunction with reflection on the academic impact of device use (Grinols & Rajesh, 2014). Therefore, the results of the present study may not represent the growing population of smartphone users from alternative employment and cultural backgrounds, for whom smartphone use is not a daily necessity within workplace and personal interactions. Thus, we strongly recommend that future research explore the impact of smartphone use within other employment populations, such as self-employed and retired individuals.

Conclusions

The findings of this study have revealed the potential of smartphones to both enrich lives and have a negative impact on well-being owing to the close connection smartphones can have to an individual's sense of self. Smartphones were found to have a symbiotic relationship with identity,

agency, social relations, and interactions in the physical world. In these domains, as highlighted by our

themes, we suggest that it is possible for existing relationships, self-esteem, and identity to be

stimulated, in support of the stimulation theories. However, participants also identified pathways where

smartphone behaviors can lead to problematic outcomes, such as displaced activity online and

technological addiction. In conclusion, we propose that theoretical understandings of smartphone use

could benefit from holistically accounting for both stimulation and displacement pathways of behavior.

If we can better understand how to enhance stimulation and limit displacement, we can encourage and

support individuals to have healthy relationships with their smartphones.

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Table 1

Demographic Information for Focus Group Participants

Demographic characteristic	Focus group		
	1 (*n* = 9)	2 (*n* = 6)	3 (*n* = 6)
Gender			
Male	4	5	0
Female	5	1	5
Prefer not to say	0	0	1
Employment status			
Student	3	6	5
Staff member	6	0	1
Highest education			
GCSE	0	0	0
Further/vocational education	1	5	4
Higher education	1	1	0
Postgraduate degree	7	0	2

Note. GCSE = General certificate of secondary education.

Table 2

Focus Group Schedule

Topic covered in focus group	Specific question	Corresponding image prompt
Ice-breaker discussion	Tell us your name, your favorite and least favorite smartphone application. What patterns do you see in the types of applications we like/dislike? How is your behavior with your phone influenced by your favorite/least favorite apps?	None
Dependence on smartphones	What do people think about the amount of time spent on a smartphone?	A smartphone and a hand
Interpersonal relationships and the smartphone	How do smartphones contribute to the ways you communicate?	A romantic couple both individually looking at smartphones
Limits of smartphone behaviors	Can anybody think of places where mobile phones should not be used?	Group of commuters individually using smartphones; a smartphone set in a library, in a cinema
Smartphone dangers	What might be risky about smartphones? How might smartphones provide safety/security?	A smartphone user crossing the road, a smartphone user exercising
Summary	How would you summarize your relationship with your smartphone?	None

Figure 1

Categories Representing the Construction of Smartphone Use in the Context of the Self