Use of Mobile Phone and In-Vehicle Interaction: A Case study among selected students in Obafemi Awolowo University, Ile-Ife, Nigeria

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Abstract

Mobile phone use among university students is now pervasively altering their social interaction with others. The study investigated the influence of mobile phone use among commuting University Students on their interaction with co-travellers and the environment through which they travel. Three hundred students of Obafemi Awolowo University, Ile-Ife, Nigeria were purposively sampled to respond to a 10-minute questionnaire. The questionnaire contained questions such as ownership of mobile phones, type and number of phones owned, frequency of usage and the influence of mobile phone usage during transit on interaction between the students and their co-travelers and with the environment they traveled through. Results showed that all the respondents possessed at least one mobile phone. In addition, results revealed a negative correlation between time of use of mobile phone and interaction with co-travelers (α=0.05, r= -0.039) and no significant correlation between length of use of mobile phone and interaction with the environment (α=0.05, r=0.079). The study established that mobile phone intrusiveness has an influence on students' interaction during commuting.

Keywords: Mobile phones; interaction; university students; correlates; communication

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Introduction

Mobile phones are increasingly inescapable technologies in the contemporary society. Globally, ownership and use of mobile phones have probably surpassed any other type of technology that could be thought of. Rice and Katz (2003, p. 598) submitted that mobile phones have outnumbered any personal computers and appear to be surpassing the popular television sets. Today's mobile phones have transcended the traditional two-way communication apparatus to attain an unprecedented hub for a rapidly budding digital lifestyle (Bajarin, 2013). The pervasiveness of mobile phones in today's world is due largely to the inexpensiveness (occurring in different brands and at variant costs), ubiquity, and portability of most handheld brands. In many African countries, the pervasiveness of the mobile phone is due largely to the collapsing landline infrastructure and specifically to the ability of mobile phone connectivity to penetrate locations impenetrable to fixed mobile cables (The Economists, 2005; Avilés, Larghi, & Aguayo, 2016; Fife & Pereira, 2016). The single most captivating feature of the mobile phone is its multi-featured capabilities which allow users to make or receive calls, send and receive text messages, initiate, maintain and update social networking, stream videos and live events, play video games and explore the internet, anywhere, anytime for as long as signal is available and the device's battery charged.

Specifically, mobile phone use is prevalent in young people's daily lives, especially as a means of establishing and maintaining social relationships based on their attitudes and subjective norms (Gauld, Lewis & White, 2014). The prevalence of mobile phones among younger people is due to their being associated with what is regarded as "digital natives" which describes a generation that grows up with information communication technology (ICT) (Prensky, 2001; Dar & Madhusudhan, 2018). For digital natives, using mobile phones and other ICTs are part of daily life as a larger population of young adults has easy and permanent access to user-friendly information and social media applications for most of their activities. It will be 'economically' true to say that today's university students belong to the first cohort of the digital natives (Palfrey & Gasser, 2008). The pervasiveness of mobile phones among the university students, who are especially drawn from various locations other than the University City itself, provides a reasonable starting point to investigate the relationship between mobile phone use while travelling and interaction with co-

travellers and with the environment through which they travel. Thus, the study was carried out to assess the influence of mobile phone use on students' interactions with co-travellers and the environment during travelling. We are not aware of any study that investigated the influence of mobile phone use on students' interaction with co-travellers in the same vehicle, on the one hand, and with the environment through which they travel, on the other.

Generally, several studies have considered the effects of mobile phones on various activities and other social interactions among young people (Igarashi, Taka & Yoshida, 2005; Ling & Yttri, 2002). Specifically, studies have also revealed that university students, on average, use their mobile phone for five to six hours, with the active users interacting with the device almost constantly (Lepp, Barkely & Karpinski, 2014). Given a near constant link to online social networks, streaming entertainment and e-commerce, mobile phone use among university students has created a lifestyle that seems clearly integrated into the prevailing and constantly modifying technology life that has led to their being tagged as a "hyper-connected" generation (Anderson & Rainie, 2012).

Theoretical background

The theoretical approach used in this study to explain correlation between mobile phone use and interaction is the theory of planned behaviour (TPB). An underlying assumption of the TPB model is that intentions predict behaviour and that intentions result from an individual's attitude towards the behaviour, subjective norms, and perceived behavioural control (PBC) over the behaviour. Attitude is the positive or negative evaluation of the behaviour, Subjective norm refers to the perception of whether others would approve or disapprove of the behaviour, while PBC is the perceived level of control that one has over engaging in or refraining from engaging in this behaviour (Ajzen, 1991).

The TPB has been used to explain and predict human behaviour in adopting information and communication technologies (Carter & Yeo, 2016; Saeri, Ogilvie, La Macchia, Smith, Louis, 2014). Specifically, Carter and Yeo (2016) used the TPB to explain mobile apps usage by university students and Cheung and To (2016) reported that the extended TPB can explain

consumer behaviour in social media. Cheung and To (2017) also adopted TPB to explain the influence of the propensity to trust on mobile users' attitude toward in-app advertisement. The TPB suggests that attitudes, subjective norms, and perceived behavioural control affect intention, and that intention, with or without perceived behavioural control, leads to actual behaviour (Ajzen, 1991). This theory, however, can also explain the decision by travelling university students to interact with co-travellers and the environment through which they travel. Students' intention to interact with co-travellers and the environment through which they travel may be influenced by their attitude toward interpersonal relationship, which also may be influenced by their perception of what interpersonal relationship is, especially considering the condition of 'strangeness' of co-travellers. This study provides significant contribution to literature in the area of mobile phone use and interaction, especially students' disposition to interact with co-travellers.

Methods

Obafemi Awolowo University Central Library, Ile-Ife, Nigeria, popularly called Hezekiah Oluwasanmi Library (Fig. 1) was used as the spatial location point for selecting the study sample. Hezekiah Oluwasanmi Library is an academic library established in 1962. It is the major repository of all academic resources (books, journals, theses, government documents etc.) which serve the needs of both staff and students of the University as well as other interested users in the community. The Library holds over 700,000 volumes of books and print materials. It also has units for electronic services that provide access to learning and research in soft contacts that are available globally. The Library has 18 main sections out of which seven are devoted to general reading and consultations. Other sections include the computer room, reference, work room and archives.

Study samples were selected from students who were found in the main reading rooms. The use of the University Central Library was to ensure that participants were strictly students and since admittance into the Library is strictly by Student's Identification Card, this study was guaranteed true target participants. Participants were drawn from students who have enrolled for at least two semesters in the university. We did not use any specific rule of selecting the participating students other than their willingness to be part of the study sample. Some of the students declined to participate in the survey because they claimed they would be writing mid-semester examinations

and others because of lack of interest in filling questionnaire. However, in all, 300 participants were included. The survey instrument was a fixed choice questionnaire designed to be completed within 10 minutes. The survey has two sections. Section one elicited information about participant's age, gender and academic level. Section two assessed ownership of phone, number owned, phone type, rate of connection to the internet, type of social media preferred, average travelling time outside the university town and average travelling time (in hours) from university town to destination. Other questions in section two were on the use of mobile phone when travelling, what the phone is used for during travelling, how long the phone is used during travelling, and whether participants interact with co-travellers and the landscape through which they travel. Bivariate correlation (Pearson) was used to test the relationship between phone use during travelling and interaction with co-travellers and the environment as well as other related variables. Analysis was done using SPSS for Windows (version 20).

Figure 1: The study area, Hezekiah Oluwasanmi Library, Obafemi Awolowo University, Ile-Ife, Nigeria

Results

Characteristics of selected students

The majority of the students was between 16 and 25 years old (91.3%) and was fairly distributed with regard to gender (46.3% male and 53.7% female). All the students possessed at least a mobile phone, and there were more 'smart phone' owners (91.0%) than 'regular phone' owners (6.3%); others possessed both types. For clarification, smart phones are those that offer features such as internet access, mail, video chatting, gaming, app downloading and music, while regular mobile phones can only be used for calling and texting. Few students make use of more than one phone; 82% make use of only one phone while 2.7% use both smart and regular phones. About 45% of the respondents travel only once during the semester, 28.7% travel twice per semester while 26.3% travel more than two times in the semester.

Usage of mobile phones, connectivity to internet

Using multi-set response, analysis of the usage of phones by students and level of connection to the internet revealed that 5.0% use their phones for text messaging only, 6.0% for calling only, 5.3% for social media only, 17.0% for movie streaming or video watching only, and 4.7%, 7.7% and 1.3% for reading, research and business, respectively. However, 76.3% of the students use their phones for a combination of two or more of the activities earlier mentioned. In terms of use of phone during transit, 95.0% of students submitted they use their phones while in transit while 5% claimed they do not. Whereas 34.0% start using their phones the moment they enter the vehicle, 29.0% do so when the journey commences, 32.7% in the course of the journey and 4.3% close to their designated bus stop. However, 50.0% use their phone for some part of the journey, 12.7% throughout the journey, 29.0% as long as the battery lasts and 7.3% as long as they are connected to the internet. While in transit, 56.3% claimed they are always connected to internet, 38.7% are occasionally connected while 5.0% rarely connect to the internet (Table 1). However, further analysis revealed no significant relationship between gender of participants and length of use of mobile phones during transit (α=0.05, r= -0.155).

Table 1: Descriptive statistics of students

Variable	Frequency	% Frequency
Age		
16-20	139	46.3
21-25	135	45.0
26-30	15	5.0
Above 30	11	3.7
Total	300	100
Sex		
Male	139	46.3
Female	161	53.7
Total	300	100
Ownership of phone		
Yes	300	100.0
No	0	0.0
Total	300	100
Type of mobile phone owned		
Smart phone	273	91.0
Normal phone	19	6.3
Both	8	2.7
Total	300	100
Number of phone owned		
One	246	82
Two	50	16.7
More than two	4	1.3
Total	300	100

Mobile phone use and interaction with co-travellers and the environment

In terms of general interaction, the results (Tables 2 and 3) revealed that 30.3% of students in the survey interact with co-travellers in transit. Others prefer to engage with their mobile phones (10.3%) or sleep (2.0%). Some claimed they do not talk to strangers (11.3%), or they mind their business (31.7%) while others cited a language barrier (2.7%), age differences between them and co-travellers (4.3%), not finding students like themselves (10.0%) and not finding the vehicle 'lively'. However, 23.7% of students claimed their interaction with co-travellers is often affected by their use of phones during transit; 75.7% claimed their interaction is not affected by phone use. Only 0.6% could not determine the influence of their phone use on in-transit interaction. In a

different vein, 65.6% claimed phone use in transit does not help make new friends or initiate a new relationship while 34.3% claimed they make more friends in the course of their journey. Further analysis showed a significant relationship between gender of respondents and interaction with co-travellers (α=0.05, r=0.047); between length of use of phone and interaction with co-travellers (α=0.05, r=0.049) and between connectivity to internet and interaction with co-travellers (α=0.05, r=0.022), but no significant relationship between connectivity to internet and level of interaction with co-travellers (α=0.05, r=0.078) and a negative relationship between time of use of mobile phone and interaction with co-travellers (α=0.05, r= -0.039). In terms of interaction with the environment, 73.3% claimed they interact with the physical and built environment during their journey, 19.3 % sometimes do so, while about 7.3% do not. For those that interact with the environment, 10.7% only do so when there is a temporary stop, 16.0% when they are going through built-up areas and 64.0% when they encounter any place or object of interest. However, 42.3% claimed mobile phone use in transit affects their interaction with the environment while 57.7% claimed it does not (Table 2). Further analysis revealed a significant relationship between gender of participants and interaction with the environment (α=0.05, r=0.033) but no significant relationship between connectivity to the internet and interaction with the environment (α=0.05, r=0.126); connectivity to the internet and level of interaction with the environment (α=0.05, r=0.052); time of use of mobile phone and interaction with the environment (α=0.05, r= -0.116); and between length of use of mobile phone in transit and interaction with the environment (α=0.05, r=0.079).

Table 2: Mobile phone usage, connectivity to internet and choice of social-media

Variable	Frequency	% Frequency
Purpose of phone		
Text messaging only	15	5.0
Call making only	18	6.0
Social media only	16	5.3
Movie streaming/watching only	51	17.0
Reading	14	4.7
Research	23	7.7
Business	4	1.3
Combination of two or more purposes	229	76.3
Use of phone in transit		
Yes	285	95.0
No	15	5.0
Connectivity to internet		
Always	169	56.3
Occassionally	116	38.7
Rarely	15	5.0
Social media often used		
Facebook	225	75.0
WhatsApp	284	94.7
Twitter	97	32.3
LinkedIn	69	23.0
YouTube	187	62.3
Google+	159	53.0
Telegram	59	19.7
WeChat	6	2.0
Instagram	166	55.3
Others	34	11.3
At what time do you begin to use your phone?		
Once I enter the vehicle	102	34
When the journey commences	87	29
Somewhere in the course of the journey	98	32.7
When close to designated bus stop	13	4.3
How long do you use your phone when in transit?		
Some part of the journey	150	50.0
Throughout the journey	38	12.7
As long as the battery can take me	87	29.0
As long as I am connected to internet	22	7.3

Table 3: Phone use and interaction

Variable	Frequency	% Frequency
Do you interact with co-travellers?		
Yes	91	30.3
No	208	69.4
Sometimes	1	0.3
If not interacting, why?		
Prefer to play with my phone	31	10.3
Don't talk to strangers	34	11.3
Not my age group in most cases	13	4.3
Sometimes they are not students like me	30	10.0
Just like minding my business	95	31.7
Language barrier	8	2.7
Sometimes vehicle not lively	18	6.0
I prefer to sleep	6	2.0
Does phone use affect your interaction with co-travellers?		
Yes	71	23.7
No	227	75.7
Can't say	2	0.6
Does your phone use in transit help you make more friends?		
Yes, I make new friends	103	34.3
No, I don't	197	65.6
Interaction with the environment and landscape while in transit		
Yes	220	73.3
No	22	7.3
Sometimes	58	19.3
If yes, at what time do you interact?		
When there is temporary stoppage	32	10.7
When going through built-up areas	48	16.0
When place/object of interest is encountered	192	64.0
Does your mobile phone use affect your interaction with the environment?		
Yes	127	42.3
No	173	57.7

Discussion

This study provided evidence of correlation between mobile phone use among university students and their interaction with co-travellers and places when in transit. Analysis of students' responses provided a range of results especially on their usage of phone and its influence on their interaction with co-travellers and the environment through which they travel. The findings show possession of mobile phones by all the university students included in the survey, clear evidence of the pervasiveness of mobile phones in our modern society (Brooks, 2016; Haverila, 2013). This is in line with studies which have established the concept of a hyper-connected population to describe the cohorts of university students raised entirely in the digital age (Anderson, et al., 2012; Smith, Rainie & Zickuhr, 2011). In the same vein, higher rates of ownership of smart phones than regular phones are now a commonplace among university students in Africa (Palumbo, 2014) because of the advanced features and functionality of smart phones in terms of communication efficiency and information access (Park & Lee, 2012; Kim & Altmann, 2013). Specifically, Wang, et al (2012) considered the user-friendly interface as well as productivity enhancing apps of smartphones as endearing. This is why smartphones are perceived as a 'must have' accessory by up-to-date and socially inclined students (Adegbenro, 2011). A large proportion of students (76.3%) indicated that they are drawn to the smart phone's multi-purpose features especially for texting, call making, social media, reading, research and video, among others, which substantially improve and simplify life and performance (Poldrack & Foerde, 2008; Kenyon & Lyons, 2007). This supports the study that established the mobile phone as a multi-activity portal rather than a mere phone (Campbell, 2007). Further, the high rate of usage of mobile phones in transit (95.0%) as revealed by this study, especially when connected to the internet (7.3%) or while battery lasts (29.0%), may provide complementary evidence to findings that established that mobile technology is likely to make travel a less perilous and less lonely experience to individuals (Jain & Lyons, 2008; Lyons & Urry, 2005; Koh, Walker, Wollershein & Liamputtong, 2018). This is specifically so because phone usability in transit may enable travelling students to have sustained reachability (Aguilera, Guillot & Bonin, 2009) especially by instant communication with their travel destination, or by creating what Licoppe and Smoreda (2005) referred to as "connected presence" which may provide friends and family with in-transit information about the students, thus creating reassurance of ease and

safety for expectant friends and family while in transit (Line, Jain & Lyons, 2011; Matsuda, 2008; Gunter & Gunter, 2019). Besides, the high usage rate of mobile phones in transit may be connected with the need for travelling students to spend part of their time reading, reviewing study materials, playing favourite music and accessing other multimedia applications on their phones, thereby insulating themselves from the loneliness and mental fatigue associated with travelling (Jain, et al., 2008). In terms of interaction of students with co-travellers, correlation between time of use of mobile phone in transit and interaction with co-travellers (-0.039) and between length of use of mobile phone and level of interaction with co-traveller (0.049) provide a somewhat significant reason to support findings that university students deliberately use their mobile phones in public spaces as a way of avoiding engagement and acquaintance with surrounding individuals (Baron & Campbell, 2012) who are particularly strangers. Specifically, the significant relationship between gender of students and interaction with co-traveller (0.047) gave credence to findings by Baron and Campbell (2012) who investigated gender-based differences in mobile phone use and established that female users employed mobile phones more frequently than male users to intentionally avoid interaction with strangers or acquaintances. However, in general, while the study could not determine the extent to which mobile phone use affects travelling students' interaction with co-travellers, non-acquaintance with co-travellers may be due to their engagement in virtual communication which reduces available time to initiate social interaction with co-travellers (e.g. Mumford & Winner, 2010). In a similar vein, 65.5% of the students submitted that using a mobile phone during travelling did not allow them to make new friends, whereas 34.3% agreed that usage of mobile phones in transit helps them make new friends. This finding, to an extent, buttresses the possibility of the use of mobile phone to impoverish relationships and increase impersonal communication (Coget, Yamauchi & Suman, 2002), and to another extent, supports the studies that established the opportunity for mobile phone users to expand the size of social networks in terms of number of members and also to increase their spatial extension (Schwanen & Kwan, 2008) especially by making new friends. In terms of participants' interaction with the environment, the findings revealed no significant relationship between time of use of mobile phone and interaction with the environment (-0.116) and between length of use of mobile phone and interaction with the environment (0.079). That the majority of students (73.3%) interacted with the environment either during temporary stoppage, when going through built-up

areas or when they encountered places or objects of interest, emphasized the resourcefulness of mobile phones in assisting with spatial orientation and perception of space (De Lange, 2009). However, the extent to which they interact with the environment (though not part of the goal of this study) may not be unconnected with the students' general environmental attitudes and worldviews which are directly affected by an individual's broad system of values and beliefs (Hurst, Dittmar, Bond & Kasser, 2013); excessive use of the mobile phone which has the capacity to reduce the level of leisure enjoyed (Jankovic, Nikolic, Vukonjanski & Terek, 2016) from sightseeing or interaction with the environment during travel. Intention of students to interact with co-travellers and the environment is connected with perceived behaviour of individual students. This is explicitly emphasized by Ajzen (1991) in his theory of planned behaviour (TPB).

Conclusion

Recognizing the pervasiveness of the mobile phone in today's world, this study sought to determine whether mobile phone use among university students affects their interaction with co-travellers and the environment through which they travel, though this study could not measure by how much this interaction is influenced. The study established that mobile phone use by university students in transit influences their interaction with co-travellers and the environment to an extent. The study further revealed a significant relationship between mobile phone use and interaction with co-travellers and a non-significant relationship between mobile phone use and interaction with the environment through which they travelled. Findings of this study follow some trends already established about the intrusiveness of mobile phones especially among the generation of young people who grew up with ICT. However, the study is limited as regards how to measure the inherent consequence, if any, of mobile phone interference with interaction of university students with co-travellers and the environment during travelling.

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