The Big Five Personality Domains and Problematic Smartphone Use Among Undergraduates of The University of Jos

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Abstract
This study examined the relationship between the big five personality traits and smartphone problematic use among University of Jos undergraduate students. 200 participants who own and use smartphones, comprising 82 males (41%) and 118 females (59%), and aged between 21 and 35 years drawn through convenience sampling method took part in the study. Two instruments were used to measure the variables in the study - the Problematic Use of Mobile Phones (PUMP) scale measured smartphone problematic use, whereas the Big Five Inventory (BFI) measured the Big Five Personality traits. Hypotheses were tested using the Pearson Moment Correlation Tool through the SPSS version 26 at 0.05 level of significance. Results revealed that extroverts, r (198) = 0.143; p= 0.043, experience smartphone problematic use. However, agreeableness, conscientiousness, neuroticism and openness to experience were not positively correlated with smartphone problematic use. A number of recommendations were advanced, including that clinicians educate, assess, and help extroverts manage the urge to use their smartphones excessively; laws guiding usage while at work or school be promulgated by policy makers, and further larger population of study be used to ascertain the veracity or otherwise of claims of this study.

Key Terms: The Big Five, Personality traits, Smartphone Problematic Use, Undergraduates, University of Jos.

Introduction

In the 21st century, it is quite difficult to live without a smartphone as it guarantees convenient access to the internet, social media, and academic literature. It also aids communication regardless of the level of proximity to one another in the form of video calls or conference calls (Kheswa & Olasina, 2021; Prendes-Espinosa et al., 2020) unlike the regular mobile phones which existed prior to the development of smartphones. The functions carried out by a smartphone has made it necessary for students to own one, or at least, have access to one for both academic and social purposes (Prendes-Espinosa, Roig-Villa & Urrea-Solano, 2020). However, when one uses their smartphone in a way that affects their normal daily functioning and relationships, it can be referred to as smartphone problematic use (Bianchi & Phillips, 2005). Belland, Chou and Condron (2017) defined smartphone problematic use as the consistent urge to use a mobile phone in spite of its harmful effect on a person's personal, family, social, educational or occupational life. Smartphone problematic use is variedly referred to in literature as smartphone

addiction, smartphone overuse or excessive smartphone use (Griffiths & Kuss, 2017; Billieux, Bollen, De Raedt, Maurage & Schimmenti, 2020).

In research by Prendes-Espinosa, Roig-Vila, and Urrea-Solano (2020), four types of smartphone users were established - occasional, habitual, at risk, and problematic users. Having a sample size of 1412 students from Spain and Italy, over a half of the participants described themselves as habitual users of their devices; although a significant percentage also acknowledged being at risk of compulsive use. Also, studies have revealed that smartphone problematic use can affect students' ability to concentrate, perform tasks, health and resting time or sleep (Prendes-Espinosa et al., 2020). It can also lead to problematic dependence, marked by compulsive checking, neglecting responsibilities, and symptoms of withdrawal (Griffiths & Kuss, 2017) which could affect relationships and cause anxiety, depression or stress (Billieux et al., 2020; Gudith, Klocke & Mark, 2019).

Previous researches have associated smartphone problematic use with variables such as Fear of Missing Out – a feeling of anxiety when a user is threatened with low battery - (FoMO) (Moningka, Selviana & Silverius, 2023), academic performance (Anyaorah, Azubuike, Nweke, Ofama & Umeaku, 2021), personality, psychopathology (depression, stress and anxiety) and gender (Arpaci, 2020; Drovak, Elhai, Hall & Levine, 2016; Griffiths & Kuss, 2017; Griffiths, Hussain & Shefield, 2017). However, in line with other studies in this area outside the current geographic scope of this study such as Elhai, Montag, Peterka-Bonetta and Sindermann (2019), Afolayan (2020), this study focused on the relationship between personality (big five traits) and smartphone problematic use necessitated by, and given already existing literature, the need to examine the student population in regards to smartphone problematic use from a different cultural setting becomes imperative.

Smartphone Problematic Use.

Smartphone problematic use is a stage of over attachment to one's device and reluctance to stop using it in order to avoid negative feelings like depression, isolation and feeling lost (Takao, 2014). There has been a global increase of smartphone problematic use among young people especially in China, Saudi Arabia, and Malaysia possibly attributably to its ubiquitous nature, affordability, multifunctionality, and educational needs (Alain, Chmoulevitch, Dasha, Élissa, Jay, Nahas, Raz & Samuel, 2022). Smartphones are essential to young people seeing that it is a means of communication and obtaining information. There are four types of smartphone users which are occasional, habitual, at risk, and problematic. In the opinion of a population of young people in Spain and Italy, the frequent and excessive use of these devices is not problematic because of technology's integration into everyday life. For example, communication is easier via mobile devices and some educational courses, meetings, and announcements occur through various online platforms. All these make the constant use of smartphones necessary rather than problematic (Prendez-Espinosa et al., 2020). Again, most students own a smartphone and engage them in their studies by using apps such as the dictionary, Word document and calculator etc. Egielewa (2021) found that students with higher grade points used social media (e.g Whatsapp and Facebook) less in comparison to students with lower grade points. However, majority of the students admitted that their smartphones were a form of distraction in class as they could chat or go out to receive a call.

Smartphone and internet use disorders were positively correlated with high impulsivity and social anxiety. Impulsivity is a symptom of addictive behaviours as seen even in

drug abuse, which qualifies smartphone problematic use to be an addictive problem while socially anxious people tend to avoid physical interaction with others and so would spend an increasing amount of time using their devices which may lead them to encounter online activities that are harmful to them like gambling (Elhai et al., 2019). Four dimensions of Problematic Internet Use (PIU) are (i) Diminished impulse control: excessive use of internet, (ii) Loneliness/Depression: feelings of worthlessness and depressive thoughts, (iii) Distraction: avoidance from stressful situations or thoughts, and (iv) Social comfort: feeling of security while using social networks. In a study by Arpaci (2020), among the female participants, nomophobia (fear of being without a phone) was positively correlated with all the dimensions of PIU except for social comfort whereas for the males, positive correlations were found between nomophobia and loneliness/depression and distraction but no correlations with diminished impulse control and social comfort. This implies that women suffer internet addiction more than men do. Similarly, Yoðurtçu (2018) associated nomophobia with certain addictive smartphone use habits such as frequent and compulsive checking of phones, always carrying a charger around, spending excessive time in smartphone usage (>3-5 hours), excessive mobile internet use, and consistent use of mobile before sleeping and after waking etc.

During the COVID-19 epidemic, Abebe, Duko, Habtamu, Kassaw, Madoro, Mengistu, Molla & Wudneh, (2023) sought to evaluate undergraduate university students in southern Ethiopia who were using smartphones and the social media problematically.

Similarly, Austin & Ibanga (2022) found evidence that proved smartphone addiction as a cause of sleep disorder, teen tendonitis (TTT), depression and anxiety among youth in Rivers State, Nigeria. Excessive smartphone use can affect physical health due to functions such as calling, texting and use of social media which are viewed as sedentary behaviors, as a result, participants reported experiencing teen tendonitis (TTT). Depressed participants were so due to access to sites that fostered other addictions such as sex or drug abuse. Also, smartphone problematic use causes sleep disorders as the production of melatonin (a hormone that aids sleep) is affected by the blue rays emitted by a smartphone screen. This led to certain implications and recommendations such as educating the youth on the effect of smartphone addiction.

The findings by Kheswa and Olasina (2021) demonstrated that the rise in the number of activities like social media, online gaming, and virtual world gaming was to blame for smartphone overuse and that excessive smartphone use, stress, and symptoms of depression affect students. Also, they found a connection between anxiety and behaviors that are similar to depression.

Bede & Olutope (2018) looked at Internet addiction (IA) and Problematic Smartphone Use (PSU) among university undergraduates as predictors of the severity of anxiety, depression, and psychological distress. The population consisted of 854 undergraduates from four universities in Osun state, southwest Nigeria. They found a significant prevalence of psychological distress, anxiety disorder, PSU, depression, and IA among the participants. Anxiety, depression, and psychological distress are significantly predicted by IA independently while PSU does not significantly predict anxiety disorder in Nigerian undergraduate students, but it does significantly predict depression and psychological distress. This research proves that smartphone problematic use has psychopathological effects on smartphone users.

Finally, aiming to research and evaluate an updated modern version of the Problematic Mobile Phone Use Questionnaire, PMPU-Q (PMPU-Q-R), Billieux, Harkin, Kanjo & Kuss (2018) focused on the rapid innovations in mobile technology, changes in use patterns,

and potential for problematic and addictive use. Their findings implied that factors related to smartphone dependence, risky driving, and antisocial smartphone use can be included to the PMPU-Q-R factor structure.

Smartphone problematic use can lead to a pattern that involves damaging one area of a person's life before spreading to other areas such as one's relationships, academic performance, diet and sleeping patterns, and cause stress and depression. Smartphone problematic use can also lead to road accidents when people drive or cross the road while using their smartphone.

The Big Five Personality Domains and Smartphone Problematic Use

In Elhai et al. (2019) replication studies, neuroticism was found to be highly positively associated with internet use disorder and conscientiousness was less significantly negatively correlated with smartphone use disorder but their findings differed from that of the original research. This was basically due to the differences in the measurement of personality and scores of the population sample of which further research is advised. According to Lane and Manner (2011) extraverts long to communicate with people and so place importance on the texting function of smartphones but music and gaming functions do not appeal to them while agreeable individuals regard calling rather than texting given that they prefer spoken communication to written communication.

Among the big five personality traits, neuroticism and openness to experience were found to be predictors of smartphone addiction. Hussain & Pearson (2015) further explained that neurotic users can suffer severe mental health problems as previous research have shown that neuroticism is related to mood disorders, substance abuse, eating disorders, and affective disorders etc. Looking at the big five traits, Moningka et al. (2023) found that people who are high on openness to experience may find it easier to use social media to commit fraud and deceive others as they may come off as trustworthy. In regard to Fear of Missing Out (FoMO), neurotic (anxious, irritable and insecure) and open (active and adventurous) individuals are eager to be active on social media because they fear being left out/behind on current happenings. Consequently, problematic social media use is correlated with the big five traits as a relationship was found between neuroticism and problematic social media use. Due to the negative emotions (insecurity, irrationality and irritability) they face, people who are neurotic are more prone to use social media problematically amongst the big five traits.

Yoðurtçu (2018) found positive correlations between extraversion and nomophobia due to their desire to socialize and communicate hence; they were always with their devices. There was no significant relationship between agreeable participants (people who are trusting and friendly to others) and nomophobia because they would barely feel anxious being away/without their smartphones. To avoid having emotional outbursts or anxiety during physical social interactions, neurotic people prefer to communicate through their smartphones which could lead to excessive or problematic use therefore; this study found that neuroticism was positively correlated with nomophobia. Whereas, openness to experience had a negative correlation with nomophobia and an explanation to this is that the less open people are, the more comfortable they are with constantly using their devices as they have little to no desire to experience new stimuli within their environment. Lastly, no correlation was found between conscientiousness and nomophobia.

Empirical studies further show the specific correlations between the big five personality traits and smartphone problematic use. For instance, in a meta-analytic review of the big five and Problematic Mobile Phone Use (PMPU), Gao, Lui, Niu, Xie, Zhai and Zhou (2020) screened 36 studies and found neuroticism and extraversion to be positively correlated

with PMPU, agreeableness and conscientiousness were negatively correlated with PMPU, while openness had no correlation with PMPU. They noted that culture may moderate the relationship between openness and PMPU as they found significant correlation among samples in individualistic cultures and not in collectivist cultures.

Hussain & Pearson (2016) in their study found that 13.3% of the sample size of 256 smartphone users were classified as addicted to smartphones. Findings showed that increased neuroticism and decreased openness were linked with a higher chance of smartphone addiction. Whereas, conscientiousness, agreeableness and extraversion were not predictors of smartphone addiction.

Griffiths et al. (2017) studied the role of narcissism, anxiety and personality on smartphone problematic use using a sample of 640 smartphone users from various ethnic backgrounds in the University of Derby, UK. Results showed that lower conscientiousness, lower openness, lower emotional stability and being of younger age were negative predictors of smartphone problematic use. Also, an increase in time spent using a smartphone may lead to smartphone problematic use.

The study by Takao (2014) attempts to look into the relationship between problematic mobile phone use and the big five personality domains. This study used two instruments: the NEO Five-Factor Inventory (NEO-FFI) and the Mobile Phone Problem Usage Scale. A multiple regression analysis was conducted using survey data collected from 504 university students in Japan. Results showed that in contrast to conscientiousness or agreeableness, problematic mobile phone use is correlated with gender, extraversion, neuroticism, and openness to experience.

Anglim and Horwood (2018) carried out a thorough evaluation of the relationship between problematic smartphone use and the broad and narrow features of the HEXACO and Five Factor Models of personality. Along with assessments of both general and problematic smartphone use, a sample of Australian adults (n = 393, 79% female; mean age = 24.4, SD = 7.1) completed the 200-item HEXACO-PI-R and the 300-item IPIP NEO. High levels of problematic smartphone use were reported by the participants. Problematic smartphone use was negatively linked with conscientiousness and positively related to neuroticism. An aspects-level analysis revealed the significance of multiple facets, such as dutifulness, competence, self-discipline, and deliberation as negative correlations and impulsiveness, vulnerability, and anxiety as positive correlates of problematic smartphone use. Within the HEXACO framework, there was a positive association found between emotionality and problematic smartphone use, whereas there was a mild negative correlation found between agreeableness, conscientiousness, openness, and honesty-humility. Narrow features offer a moderate incremental prediction of problematic use, according to regression models. In summary, the research emphasizes the significance of personality characteristics in comprehending inclinations towards engaging in problematic smartphone usage.

Albertella, Li, Li, Liu, Liu, Ren, Rotaru, Wei, Yang & Yücel, (2023) used a network analytic approach to investigate the following: 1) particular pathways that connect each of the big five personality traits to symptoms of problematic smartphone use; and 2) the bridging effects that each big five personality trait has on the cluster of symptoms of problematic smartphone use . A graphical Gaussian model that was regularized was estimated for 1,849 university students in China. Using items from the problematic smartphone use Scale, problematic smartphone use symptoms were evaluated. The Chinese Big Five Personality Inventory-15 subscales were utilized to evaluate various aspects of the big five personality traits. To quantify bridge nodes, an empirical index was utilized, which is the bridge predicted influence. The big five personality qualities

(e.g., neuroticism-escape/avoidance, conscientiousness-preoccupation, and extraversion-escape/avoidance) were found to be correlated in particular and distinct ways with problematic smartphone use symptoms. In addition, among the big five personality traits, neuroticism indicated the highest positive bridge centrality and conscientiousness the highest negative bridge centrality.

Smartphone problematic use and the Big Five Personality Domains in Nigeria.

Smart phone possession and use among young people is on the increase in Nigeria and smartphone addiction has been shown to be similar to substance use dependence. There is barely any literature focused on the effect of personality on smart phone use among young people in Nigeria but a few relevant findings are discussed below;

The study by Folusho & Oluwatoyin (2020) examined the frequency of problematic smartphone use and related variables among youth in Ibadan preparing for college. The 27-item mobile phone problem usage scale was used to evaluate problematic smart phone use, and scores were assigned on a 5-point Likert scale. A total of 575 individuals were enlisted, ranging in age from 14 to 24 years old, with 46.0% of them being men. 46.5% of respondents reported moderate-to-severe problematic phone use, while nearly all (96.7%) respondents had access to a smart phone. Male youth with high levels of extroversion, low conscientiousness, low intellect scores, and who had their parents pay for their data were more likely to experience problematic phone use. Three factors were found to be predictive of problematic phone use: low conscientiousness, high extroversion, and male gender.

Chibuzor (2019) investigated problematic smartphone use in a mixed sample of respondents and related personality factors (loneliness, extraversion, and self-esteem). Conveniently selected from among undergraduate students at a higher education institution in a semi-urban area of Nigeria, the sample consisted of 271 participants. Findings showed that problematic smartphone use is significantly correlated with extraversion, self-esteem, and loneliness. The findings additionally indicate that loneliness, extraversion, and self-esteem all have a significant independent and combined impact on problematic smartphone use, with extraversion being the personality characteristic that had the greatest impact. Furthermore, negative smartphone use was unaffected by gender.

Among students of the University of Illorin, Kwara State, Nigeria, Afolayan (2020) found that conscientiousness and agreeableness were positively correlated with smartphone addiction while neuroticism and extraversion were negatively correlated with smartphone addiction. However, openness to experience had no significant correlation with smartphone addiction. Also, specific phone usages were related to particular traits. For example, emailing and text messaging were negatively correlated with extraversion, browsing and chatting were negatively correlated with agreeableness, instant messaging and social networking were negatively correlated with openness, and voice calling and text messaging were positively correlated with conscientiousness etc.

A study by Anyaorah et al. (2021) looked at undergraduates' personality traits and smartphone addiction as predictors of their academic performance. The study involved 55 undergraduate students from Nnamdi Azikiwe University in Awka's psychology department who volunteered based on a random selection process. The findings showed that, with the exception of openness to experience, all other personality traits were positively correlated with academic performance. It was discovered that among undergraduates at Nnamdi Azikiwe University in Awka, personality traits and smartphone addiction both predicted academic success.

Five research hypotheses were tested as follows:

1. There will be a significant positive relationship between extraversion and smartphone problematic use.
2. Agreeableness and smartphone problematic use will positively and significantly relate.
3. There will be a significant positive relationship between conscientiousness and smartphone problematic use.
4. Neuroticism will positively relate significantly with smartphone problematic use.
5. Openness to experience will significantly relate with smartphone problematic use.

METHOD

Research Design

This study was a cross sectional survey design that employed structured questionnaire to elicit responses among a selected set of participants drawn from the undergraduate population of the University of Jos.

Participants

Participants in this research consisted of 200 undergraduate students of the University of Jos, Nigeria. Convenience sampling technique was used to obtain the sample size of 82 males (41%) and 118 females (59%). The participants' age range was 16-40 years (? = 2.20 SD= .831).

Instruments

Two instruments were used - the Problematic Use of Mobile Phone Scale (PUMP), a self-report questionnaire developed by Merlo and Stone (2013) as a single-factor structure and purposefully for English-speaking respondents. It consists of 20 items. PUMP uses a 5-point Likert scale ranging from 1=Strongly Disagree to 5=Strongly Agree. Higher scores on the scale indicate high smartphone problematic use while lower scores indicate low smartphone problematic use; and the Big Five Inventory (BFI) developed by John and Srivastava (1998) and consists of 44 items (statements) is a self-report scale designed to measure the big five personality dimensions of extraversion vs. introversion, agreeableness vs. antagonism, conscientiousness vs. lack of direction, neuroticism vs. emotional stability and openness vs. closedness to experience and has been used among the Nigerian population previously by Afolayan (2020). It had a reliability of 0.77; and uses a 5- Likert scale ranging from 1=Disagree Strongly to 5=Agree Strongly.

Procedure

Using convenience sampling method, consenting participants filled the questionnaires administered to them in a conducive classroom environment and returned them. In some cases, the researchers were assisted by class representatives of various departments and levels to aid the process of data collection and make it less burdensome for the researchers.

Instructions were clearly stated in the questionnaire on how participants were to respond to each question or statement in the various sections. A total of 220 questionnaires were administered, 213 were returned and 200 were valid.

Descriptive statistics including…. mean, frequency and standard deviation were used to analyze data collected in section A (demographics) while Pearson Moment Correlation tool was used to assess the relationship between the big five personality traits and smartphone problematic use at 0.05 level of significance. The Statistical Package for Social Sciences (SPSS) version 21.0 was used for this analysis.

Results

Descriptive Statistics

Table 1 Demographics

	N	Mean	Std.Dev
Gender	200	1.59	.493
Age	200	2.20	.831
Occupation	200	1.10	.311
Academic level	200	2.59	1.183
Own a smartphone?	200	1.04	.196
How long?	200	3.60	.889
Phone brand	200	3.04	2.024

Inferential Statistics

H1: There will be a significant positive relationship between extraversion and smartphone problematic use.

Table 2

		Smartphone problematic use	Extraversion
Smartphone problematic use	Pearson correlation	1	.143
	Sig (2 tailed)		.043
	N	200	200
Extraversion	Pearson correlation	.143	1
	Sig (2 tailed)	.043	
	N	200	200

*. Correlation is significant at the 0.05 level (2-tailed).

In table 2, a Pearson correlation coefficient was computed to assess the relationship between extraversion and problematic smartphone use. There was a positive correlation between the two variables, r (198) =.143, p=.043 at 0.05 level of significance.

H2: There will be a significant positive relationship between agreeableness and smartphone problematic use.

Table 3.

		Smartphone problematic use	Agreeableness
Smartphone problematic use	Pearson correlation	1	.104
	Sig (2 tailed)		.144
	N	200	200
Agreeableness	Pearson correlation	.104	1
	Sig (2 tailed)	.144	
	N	200	200

Table 3: The analysis revealed a weak positive correlation between agreeableness and smartphone problematic use, r (198) =.104, p =.144 at 0.05 level of significance.

H3: There will be a significant positive relationship between conscientiousness and smartphone problematic use.

Table 4.

		Smartphone problematic use	Conscientiousness
Smartphone problematic use	Pearson correlation	1	.112
	Sig (2 tailed)		.144
	N	200	200
Conscientiousness	Pearson correlation	.112	1
	Sig (2 tailed)	.114	
	N	200	200

*. Correlation is significant at the 0.05 level (2-tailed).
The analysis showed a weak positive correlation, r (198) =.112, p =.114

H4: There will be a significant positive relationship between neuroticism and smartphone problematic use.

Table 5.

		Smartphone problematic use	Neuroticism
Smartphone problematic use	Pearson correlation	1	.106
	Sig (2 tailed)		.134
	N	200	200
Neuroticism	Pearson correlation	.106	1
	Sig (2 tailed)	.134	
	N	200	200

Table 5 indicates the association between neuroticism and smartphone problematic use was investigated using a Pearson correlation coefficient. The analysis revealed thus r (198) =.106, p =.134

H5: There will not be a significant positive relationship between openness to experience and smartphone problematic use.

Table 6.

		Smartphone problematic use	Openness
Smartphone problematic use	Pearson correlation	1	.133
	Sig (2 tailed)		.059
	Sum of squares and cross-product	39561.520	1750.080
	Covariance		
	N	198.802	8.794
		200	200
Openness	Pearson correlation	.133	1
	Sig (2 tailed)	.059	
	N	200	200

Table 6 indicates a Pearson correlation coefficient was computed to examine the relationship between openness to experience and smartphone problematic use among 200 participants. The analysis revealed a positive correlation of r (198) =.133, p =.059

Discussion of Findings

H1: Based on the results, this hypothesis was supported. This positive relationship implies that high score on extraversion increases likelihood of problematic use of smartphone. Extraverted individuals are generally more social and outgoing, and so might use their smartphones more frequently to connect with others, potentially leading to problematic usage patterns. This result is in line with the findings of Lane & Manner (2011), Takoa (2014), Griffiths & Kuss (2017), and Chibuzor (2019), who all found positive correlations between extraversion and smartphone problematic - all contrasting Hussain & Pearson (2016) - which did not find extraversion as a predictor of smartphone addiction.

H2: This hypothesis was rejected and lays credence to findings in literature such as those of Yoðurtçu (2018) who found no significant relationship between agreeable participants and nomophobia (fear of being without a smartphone), and Hussain & Pearson (2016) who also found that agreeableness is not a predictor of smartphone addiction unlike Afolayan (2020) who found agreeableness to be positively associated with smartphone addiction

H3: This hypothesis was rejected in line with findings of Griffiths et al. (2017) and Folusho & Oluwatoyin (2020).

H4: This hypothesis was also rejected. However, most of the reviewed literature do not agree with this finding (such as Takao 2014; Fan et al. 2016); Elhai et al. 2019; Hussain & Pearson 2015; Gao et al. 2020; and Albertella et al. 2023) who all found that due to constant mood swings, anxiety, irrationality, and emotional instability, neurotic participants used their smartphones excessively as a coping mechanism which leads to smartphone addiction.

H5: This hypothesis was rejected. Afolayan (2020) found no correlation between openness to experience and smartphone addiction while Anglim & Horwood (2018), Yoðurtçu (2018) and Griffiths et al. (2017) had similar findings. However, the findings of Takao (2014) suggest a correlation between openness and problematic mobile phone use, whereas Moningka et al. (2023) found that open participants could easily use their social media to commit fraud and deceive others.

Conclusion

The main objective of this study was to determine the relationship between the big five personality traits and smartphone problematic use. Amidst the relevant literature reviewed, results showed that among the big five personality traits, only extroverts were prone to facing smartphone problematic use while agreeableness, conscientiousness, neuroticism and openness to experience are less likely to use their smartphones problematically.

Recommendations

The psychological Services Center of the University of Jos may provide psychological interventions on students who need help in curbing or managing excessive use of their devices in line with the findings of this study. Policies in the form of rules guiding conduct may be put in place to guide the use of smartphones within the school environment such as non-receiving of phone calls during lectures, putting smartphones on silent mode during classes and no use of smartphones when driving and walking within the University.

Additionally, more stratified sampling technique to draw a larger sample of participants in future research is recommended.

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