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Nomophobia as a Possible Mental Health Disorder in Gauteng Secondary Schools*

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Abstract: To mention some, educators and learners use their mobile phones to access resources for schoolwork, and to keep in touch with family and friends. Despite the positive advantages brought by communication technologies in simplifying human life, currently it also conveyed a problem of addiction to videogames, internet and mobile phones. Specially, mobile phone addiction which is commonly termed as nomophobia is emerging as a mental health disorder due to overdependence people have shown on it. Having this in mind, the researcher was initiated to determine whether educators and learners do suffer from nomophobia (the irrational fear of not having access to their mobile phones and the capabilities on their mobile phones), and to define whether nomophobia may be considered as a mental health disorder or not, as well. In this study, an explanatory sequential mixed research design was used. In line with the notion of this design, quantitative and qualitative data were collected and analysed sequentially. A mixed methods single case research (MMSCR) was adopted. In the first phase of the quantitative study, data were collected from 620 respondents' of educators and learners using a questionnaire. Whereas in the second phase of qualitative study, data were collected from six educators and 15 learners (a total of 21 participants) using a semi-structured interview in face-to-face interaction. The results obtained from the quantitative phase of the study revealed the prevalence of mild, moderate and severe nomophobia. It also found that educators displayed a higher level of nomophobia as compared to learners. By complementing the results obtained in phase one's study, the findings of the qualitative phase confirmed that educators do feel uncomfortable without access to the information that they regularly check up on and by their own admission do spend a lot of time on their mobile phones. Furthermore, the study found that learners have an affinity for games and admit their addiction to it. Based on the findings, the researcher has recommended for the development of a policy that governs mobile phone usage at schools so as to increase instructional benefits obtained through proper usage and also to minimize the negative effect it has in distracting students from learning when it is used unwisely.

Keywords: *Nomophobia, Mobile Phones, Educators, Learners, Addictions.*

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Introduction

Mobile phones have become a necessity for many people throughout the world. The ability to keep in touch with family, business associates, and access to email are only a few of the reasons for the increasing importance of mobile phones. Today's technically advanced mobile phones, referred to as smartphones, which have the functionality of computers (or mini-PCs), are capable not only for receiving and placing phone calls, but also for storing data, taking pictures, and can even be used as walkie talkies, to name just a few of the available options (Kingston, 2020).

Davie and Hilber (2017) succinctly put it, “*New technologies have brought new forms of addiction with them*” (p. 100). Traditional addictions to alcohol, drugs or gambling have now been joined by addictions to videogames, the internet and even mobile phones. Mobile phone addiction is commonly termed nomophobia (Wikipedia, 2016; Petter, 2018; Webster, 2019). Nomophobia is the irrational fear of being without your mobile phone or being unable to use your phone for some reason, such as the absence of a signal or running out of minutes or battery power (Rouse, 2013). A phobia is by definition an irrational fear (Webster, 2019). In the case of nomophobia, the events that the user fears are not terribly unlikely, so that part of it is not irrational; what is irrational is the degree of discomfort the users feel at the thought of being separated from their smartphones.

Certainly, nomophobia is one of the newest forms of digital addiction and as such has been less researched than other forms, such as internet addiction, for example. However, researchers in South Korea (Kim, 2013; Kwon, 2013; Jena, 2015) have found that levels of mobile phone addiction are even higher than internet addiction. One of the causes posited for this was the convenience of mobile devices. Suitability of phone devices makes mobile learning so interesting and useful, and may therefore also be leading to a dangerous addiction. Educational institutions which have actively encouraged students to make use of mobile devices should be prudent to investigate this topic before further expanding the use of mobile learning.

It is evident that new technologies create opportunities as well as challenges for teachers and learners. The use of the mobile phone in the classroom, has been the subject of educational and media scrutiny. Research shows that mobile phones serve as distractions in the classroom setting and impair learning (Mendoza et al., 2018). The research on teacher nomophobia is scarce. However, Moreno-Guerrero, et al. (2020) have conducted research on the impact of cell phone use on pre-service teachers, and their findings highlight that it is necessary to make educational interventions with regard to mobile phone usage and to promote education for the responsible and critical use of media and technologies. Thus, teaching and learning can be severely compromised if learners and teachers alike have mobile phone addictions or nomophobia.

Research Questions and Objectives

With the above in mind, the problem statement of the study was phrased as follows: Should nomophobia be regarded as a mental health disorder in Gauteng secondary schools?

The objective of this study was to distinguish whether nomophobia should be considered as a mental health disorder in Gauteng secondary schools; and discuss how nomophobia as a mental health disorder can be treated and managed to improve the quality of teaching and learning in Gauteng secondary schools.

Literature Review

The Concept of Nomophobia

Nomophobia has been proposed by psychiatrists as a specific phobia that is a rising trend among high school learners (Cambridge, 2020). Nomophobia (short for 'no mobile phobia') is a word for the fear of, or anxiety caused by, not having a working mobile phone. It has been considered a symptom or syndrome of problematic digital media use in mental health, the definitions of which are not standardized (Webster, 2019). Furthermore, the fear of being without a mobile phone leads to anxiety and panic attacks in people.

According to Ali et al. (2017) psychological factors are involved in the overuse of a mobile phone. These could include low self-esteem (when individuals looking for reassurance use the mobile phone in inappropriate ways) and extroverted personality (when naturally social individuals use the mobile phone to excess). It is also highly possible that nomophobic symptoms may be caused by other underlying and pre-existing mental disorders, with likely candidates including social phobia or social anxiety disorder, social anxiety and panic disorder.

Nomophobia and Mental Disorders

The Diagnostic and Statistical Manual of Mental Disorders (DSM) is considered to be the gold standard manual for assessing psychiatric diseases. The DSM-5 is the product of more than 10 years of effort by hundreds of international experts in all aspects of mental health. Their dedication and hard work have yielded an authoritative volume that defines and classifies mental disorders in order to improve diagnoses, treatment, and research (Jibson & Seyfried, 2016).

The DSM-5 Anxiety Work Group has put forward recommendations to modify the criteria for diagnosing specific phobias (Bragazzi & Del Puente, 2014). They propose to consider the inclusion of nomophobia in the DSM-5, and make a comprehensive overview of the existing literature, discussing the clinical relevance of this pathology, its epidemiological features, the available psychometric scales, and the proposed treatment. Even though nomophobia has not been included in the DSM-5 (Davies, 2018), much more attention is paid to the psychopathological effects of the new media, and the interest in this topic will increase in the near future, together with the attention and caution not to hyper-codify as pathological normal behaviours.

The term nomophobia is constructed on definitions described in the DSM-5, it has been labelled as a "phobia for a particular/specific thing" (Bhattacharya, Bashar, Srivastava & Singh, 2019, p 1298). Bhattacharya et al, (2019) explain that it is very difficult to differentiate whether a patient becomes nomophobic due to mobile phone addiction or existing anxiety disorders manifest as nomophobic symptoms. Nomophobia may also act as a proxy to other disorders. They caution that we have to be very judicious regarding its diagnosis. Some mental disorders can precipitate nomophobia also and vice versa. The complexity of this condition is very challenging to the patients' family members as well as for the physicians as nomophobia shares common clinical symptoms with other disorders. That's why nomophobia should be diagnosed by exclusion. We have to stay in the real world more than the virtual world. We have to re-establish the human-human interactions and face to face connections. So, we need to limit our use of mobile phones rather than banning it because we cannot escape the force of technological advancement. Bragazzi and Del Puente (2014) propose that the effects and symptoms of nomophobia can range from psychological, physical, emotional and social effects and symptoms.

Criteria to Determine Nomophobia

Patel (2015) stated that to be nomophobic four or more of the following signs and symptoms are thought to comprise criteria for cell phone addiction. The problematic cell phone overuse must cause significant harm in the individual's life. These signs and symptoms may include: a need to use the cell phone more and more often in order to achieve the same desired effect; persistent failed attempts to use the mobile phone less often; preoccupation with mobile phone use; turns to mobile phone when experiencing unwanted feelings such as anxiety or depression; excessive use characterized by loss of sense of time; has put a relationship or job at risk due to excessive mobile phone use; decreased tolerance and a need for newest mobile phones, more applications, or increased use; and withdrawal, when mobile phone or network is unreachable, which results in anger.

While a mobile phone can be a hugely productive tool, compulsive use of this device can interfere with work, school, and relationships (Ali et al., 2017). When you spend more time on social media or playing games than you do interacting with real people, or you can't stop yourself from repeatedly checking texts, emails, or apps—even when it has negative consequences in your life—it may be time to reassess your technology use (Bahl & Deluiis, 2019). Mobile phone addiction, sometimes colloquially known as 'nomophobia' (fear of being without a mobile phone), is often fuelled by an Internet overuse problem or Internet addiction disorder. After all, it's rarely the mobile phone itself that creates the compulsion, but rather the games, apps, and online worlds it connects us to (Battacharya et al., 2019).

Despite the fact that people can experience impulse-control problems with a laptop or desktop computer, the size and convenience of mobile phones means that we can take them just about anywhere and gratify our compulsions at any time. In fact, most of us are rarely ever more than five feet from our mobile phones. Like the use of drugs and alcohol, they can trigger the release of the brain chemical dopamine and alter your mood. You can also rapidly build up tolerance so that it takes more and more time in front of these screens to derive the same pleasurable reward (Davie & Hibber, 2017). Heavy mobile phone use can often be symptomatic of other underlying problems, such as stress, anxiety, depression, or loneliness (Davie & Hibber, 2017). At the same time, it can also exacerbate these problems. If you use your mobile phone as a 'security blanket' to relieve feelings of anxiety, loneliness, or awkwardness in social situations, for example, you'll succeed only in cutting yourself off further from people around you. Staring at your phone will deny you the face-to-face interactions that can help to meaningfully connect you to others, alleviate anxiety, and boost your mood. In other words, the remedy you're choosing for your anxiety (engaging with your mobile phone), is actually making your anxiety worse (Battacharya et al., 2019).

Research Methodology

This study adopted a mixed methods single case study research (MMSCR) design. Gray (2014) highlights that, in a mixed methods research study, quantitative and qualitative data are collected and involve the integration of data at one or more stages in the process of the research. These approaches are complementary since, as McMillan and Schumacher (2014) aver that qualitative findings usually inform and support the quantitative results. The explanatory, sequential research design ably assisted the researcher to use the qualitative data in elucidating matters in finer detail to add meaning to the quantitative results (Creswell, 2014). For this mixed-methods single case study research, the explanatory sequential research design was used. The research design in this study involved two distinguishable, but complementary phases:

- Phase 1: The researcher collected quantitative data and analysed it statistically (Creswell, 2014). Thus, Phase 1 assisted in determining whether teachers and learners perceive themselves to suffer from nomophobia. Phase 1 also determined if teachers and learners perceive that nomophobia has an impact on the quality of teaching and learning. Phase 1 oftentimes also expedites the selection of appropriate questions for Phase 2.
- Phase 2: The results of Phase 1 were refined and built on by employing a qualitative approach (Creswell, 2014). Furthermore, in Phase 2 teachers and learners made recommendations on how to manage the impact of nomophobia on the quality of teaching and learning.

Methodology

The focus of the study was to investigate whether nomophobia should be considered as a mental health disorder in Gauteng secondary schools, and thus the Pragmatic paradigm was adopted (Kivunja & Kuyini, 2017). What was needed was a worldview which would provide methods of research that were seen to be most appropriate for studying the phenomenon at hand. This approach allowed a combination of methods that in conjunction could shed light on the actual behaviour of participants, the beliefs that stand behind those behaviours and the consequences that are likely to follow from different behaviours (Martens, 2015; Kivunja & Kuyini, 2017). This paradigm advocates a relational epistemology (i.e. relationships in research are best determined by what the researcher deems appropriate to that particular study), a non-singular reality ontology (that there is no single reality and all individuals have their own and unique interpretations of reality), a mixed methods methodology (a combination of quantitative and qualitative research methods), and a value-laden axiology (conducting research that benefits people) (Kivunja & Kuyini, 2017). The pragmatic paradigm is normally associated with the mixed methods research approach (Creswell, 2014). Reality is socially constructed and therefore multiple mental constructions can be apprehended, some of which may be in conflict with one another. Furthermore, perceptions of reality may change as concepts of nomophobia and the concept of mental health disorders are socially constructed phenomena that mean different things to different people (Mertens, 2010; Daniel & Harland, 2018).

Population and Sampling

South Africa has more than 25,000 schools, 23,000 of which are public schools that cater for more than 12-million learners (Passmark, 2018). A complete coverage of the theoretical population would be difficult. The researcher has selected one school (the single case) from all the Gauteng public, secondary schools that have a ban on the use of mobile phones in the classroom. This sets boundaries between the schools in Gauteng that allow the use of mobile phones in classrooms and those that do not. This school was selected for the case because it has the setting of boundaries on the study units that possess specific characteristics in the theoretical population, and it is a typical case in the theoretical population. The researcher opted for a census approach within the case for the quantitative phase (Phase 1) and purposive sampling for the qualitative phase (Phase 2) of the study.

The Quantitative Sample

For this study, a census sampling approach was used for the collection of data in the quantitative phase (Phase 1). The school that is used for the case has a population of 42 educators and 1020 learners. The entire school of 42 educators and 1020 learners were given a questionnaire. In a census sampling method, the results are reliable and accurate (Surbhi, 2017).

The Qualitative Sample

For the qualitative phase (Phase 2), a total of twenty-one participants ($n=21$) were interviewed. The participants for the qualitative phase of the study were made up of 15 learners

(3 learners from each grade starting from grade 8 to grade 12) and 6 educators that were part of the case study. The researcher undertook purposive sampling to select learners and educators at a Gauteng school. Purposive sampling has the benefit of being less costly and time consuming, has an ease of administration, usually assures a high participation rate and it is possible to generalise similar subjects (McMillan & Schumacher, 2014).

Data Collection

The type of research approach adopted in this study informed the research instruments that were used. Both qualitative and quantitative research instruments were used to collect data for this study. Quantitative data are collected by adapting the Nomophobia Questionnaire (NMP-Q) (Yildirim & Correia, 2015) which uses scaled items, and closed form items. The qualitative data were collected via face-to-face interaction by using semi-structured interview questions which were conducted with educators and learners at the purposefully selected Gauteng school (the case). A cell phone was used to record each interview, which was later transcribed using MS Word processing software and a computer.

Data Analysis

In Phase 1 of this study, once data has been collected through the use of questionnaires, the IBM SPSS software has been used to capture, analyse and interpret the data. The quantitative data were presented using tables, graphs and statistical numbers (Creswell, 2013; McMillan & Schumacher, 2014). A total of 620 out of 1062 valid questionnaires were received and analysed. Specifically, out of the 620 questionnaires 587 were completed by learners while 33 were filled by educators.

The qualitative data were collected using face-to-face, semi-structured interviews and were transcribed into MS Word format. The results obtained from the interviews have been arranged in sequence with the responses received from the questions in the interviews. The sequential order of the questions has been adhered to as far as possible. These were organised into data segments, which contained similar comprehensive and relevant ideas.

Results

Results obtained from Quantitative Data Analysis

The quantitative phase (Phase 1) measures respondents' perceptions to scrutiny whether they suffer from nomophobia or not and to level out its extent if there is any. Respondents were asked to rate 20 statements pertaining to their perception on their personal mobile phone usage. A seven-point Likert-type scale was used to rate the statements, where 1 = strongly disagree, 2 = disagree, 3 = partially disagree, 4 = neutral, 5 = partially agree, 6 = agree and 7 = strongly agree. Higher levels of agreement with a statement would be associated with higher levels of mobile phone usage, while disagreement would be associated with less or no mobile phone usage. There is a substantial difference between adult and adolescent thinking. Adult thinking differs in three ways from adolescent thinking: Practical, cognitive flexibility and dialectical thinking. Adults have more flexibility in their thought patterns, understanding that there are multiple opinions on issues, and that there is more than one way to approach a problem. Furthermore, the difference between young adolescents and adult reasoning is particularly obvious when it involves reasoning requiring the conjunction of emotion and logic (Icenogle et al., 2019). The researcher thus feels it is necessary to differentiate between the responses of educators and learners. The results that are presented show the responses of educators and learners separately. The researcher gives a breakdown of the scores which gives the interpretation of the extent of nomophobia among respondents in Table 1.

Table 1
Interpretation of nomophobia scores

Score	Interpretation
20	Absence of nomophobia
21-59	Mild level of nomophobia
60-99	Moderate level of nomophobia
100-140	Severe nomophobia

Table 1 shows the range of scores derived from the adapted NMP-Q that will determine whether respondents display an absence of nomophobia, a mild level of nomophobia, a moderate level of nomophobia or severe nomophobia.

The results of a univariate analysis of the constructs determined are shown in Table 2 for educators. Furthermore, the scores of the items were added to determine the extent of nomophobia of respondents.

Table 2
Descriptive statistics of educators responses to constructs from nomophobia questionnaire (n=33)

Construct	M	95% CI Upper bound	95% CI Lower bound	5% Trimmed mean	Median	Variance	SD
Not being able to access information	4.992	4.531	5.454	5.047	5.250	1.697	1.303
Giving up convenience	4.049	3.543	4.553	4.058	4.200	2.030	1.425
Not being able to communicate	4.994	4.425	5.464	4.982	5.167	2.149	1.466
Losing connectedness	3.474	2.942	4.016	3.474	3.600	2.295	1.514
Nomophobia questionnaire sum	87.27	79.28	95.26	87.09	88.00	507.89	22.53

The results from Table 2 and Table 3 are discussed together after the presentation of Table 3, since they are interlinked. The results of a univariate analysis of the constructs determined are shown in Table 3 for learners. Furthermore, the scores of the items were added to determine the extent of nomophobia of respondents.

Table 3
Descriptive statistics of learners responses to constructs from nomophobia questionnaire (n=587)

Construct	M	95% CI Upper bound	95% CI Lower bound	5% Trimmed mean	Median	Variance	SD
Not being able to access information	4.703	4.600	4.811	4.767	5.000	1.765	1.329
Giving up convenience	4.322	4.212	4.432	4.339	4.400	1.840	1.357
Not being able to communicate	4.682	4.560	4.804	4.735	4.833	2.286	1.512
Losing connectedness	3.746	3.620	3.872	3.728	3.600	2.149	1.555
Nomophobia questionnaire sum	87.25	85.34	89.16	87.74	88.00	553.83	23.53

Table 2 and Table 3 reveal that it is more important for educators to have access to information (M= 4.992; SD= 1,303) than it is for learners (M= 4.703; SD= 1.329). Educators also find the need to communicate (M= 4.994; SD= 1.466) more essential than learners (M= 4.682; SD= 1.555). The nomophobia questionnaire sum reveals that on average educators (M= 87.27; SD= 22.53) and learners (M= 87.25; SD= 23.53) have a moderate level of nomophobia.

A two-sample t-test was performed to compare the level of nomophobia among educators and learners. There was not a significant difference in the levels of nomophobia between educators (M= 87.27, SD= 22.53) and learners (M= 87.25, SD= 23.53); $t(618) = 0.05$, $p = 0.996$). The results as reported indicate that nomophobia levels seemed to be consistent across educators and learners with no significant differences reported in mean levels ($p > 0.05$).

Table 4 reveals the breakdown of the actual numbers and percentages of educators and learners and their levels of nomophobia as calculated. It also highlights the levels and extent of the nomophobia among educators and learners. The results are illustrated in **Error! Reference source not found.** Table 4 reveals the extent of nomophobia perceived by educators and learners.

Table 4
Breakdown of extent of nomophobia among educators and learners

Score	Level of nomophobia		Educator	Learner	Total
20	Absence of nomophobia	n	0	0	0
		%	0.0%	0.0%	0.0%
		Lower 95% CL			
		Upper 95% CL			
21-59	Mild level of nomophobia	n	5	76	81
		%	15.2%	12.9%	13.1%
		Lower 95% CL	6.0%	10.4%	10.6%
		Upper 95% CL	30.1%	15.8%	15.9%
60-99	Moderate level of nomophobia	n	17	318	335
		%	51.5%	54.2%	54.0%
		Lower 95% CL	34.9%	50.1%	50.1%
		Upper 95% CL	67.8%	58.2%	57.9%
100-140	Severe nomophobia	n	11	193	204
		%	33.3%	32.9%	32.9%
		Lower 95% CL	19.2%	29.2%	29.3%
		Upper 95% CL	50.3%	36.8%	36.7%

The global prevalence of nomophobia by severity revealed that the prevalence of moderate to severe nomophobia is 70.76%. The prevalence of severe nomophobia is approximately 21% in the general adult population (Humood et al., 2021). Interestingly in this study none (0.0%) of the respondents reported an absence of nomophobia. More educators have severe nomophobia (33.3%; 95% CL 19.2%; 50.3%) than learners (32.9%; 95% CL 29.2%; 36.8%). On average, about a third of respondents suffer from severe nomophobia (32.9%; 95% CL 29.3% ;36.7%), which is higher than the global prevalence of severe nomophobia (20.8%; 95% CL 15.45%; 27.43%). This is of grave concern to the researcher.

Figure 1 gives a graphical representation of the results obtained in Table 4.

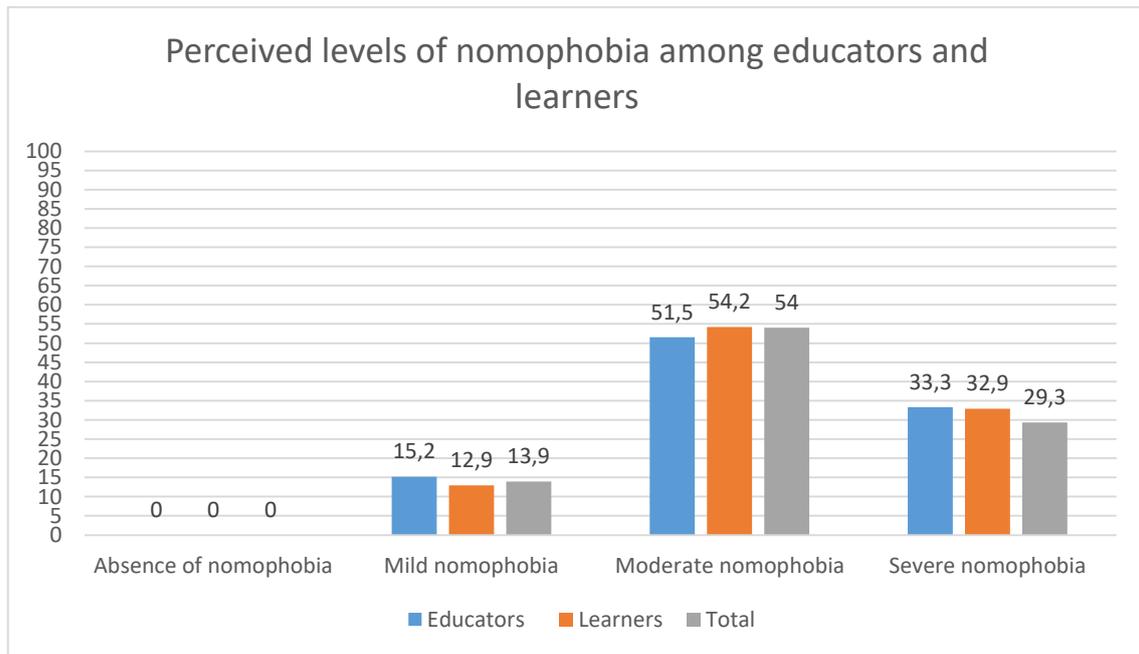


Figure 1 Perceived levels of nomophobia among educators and learners

Figure 1 reiterates the results obtained from Table 4. The graphical representation allows readers to visualise the perceived levels of nomophobia among educators and learners.

The distribution of the summated average score for nomophobia is shown in Figure 2 for educators.

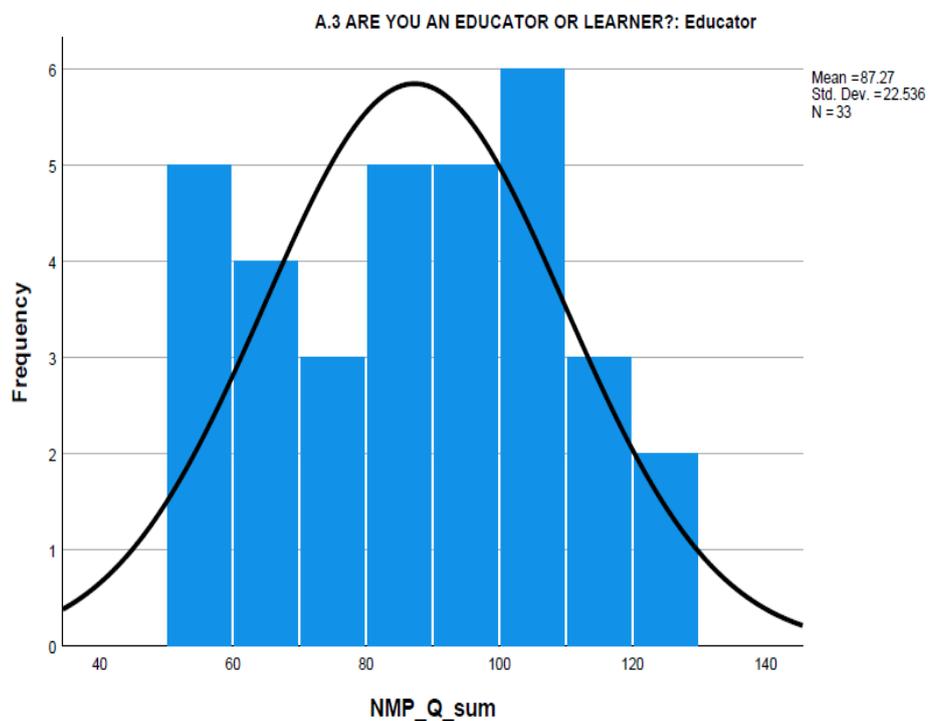


Figure 2 Distribution of summated average score for nomophobia (Educators) (n = 33)

For educators, a mean of 87.27 was reported, with a standard deviation of 22.53. It is therefore evident from these statistics and the histogram that educators generally reported a moderate level of nomophobia.

The distribution of the summated average score for nomophobia is shown in Figure 3 for learners.

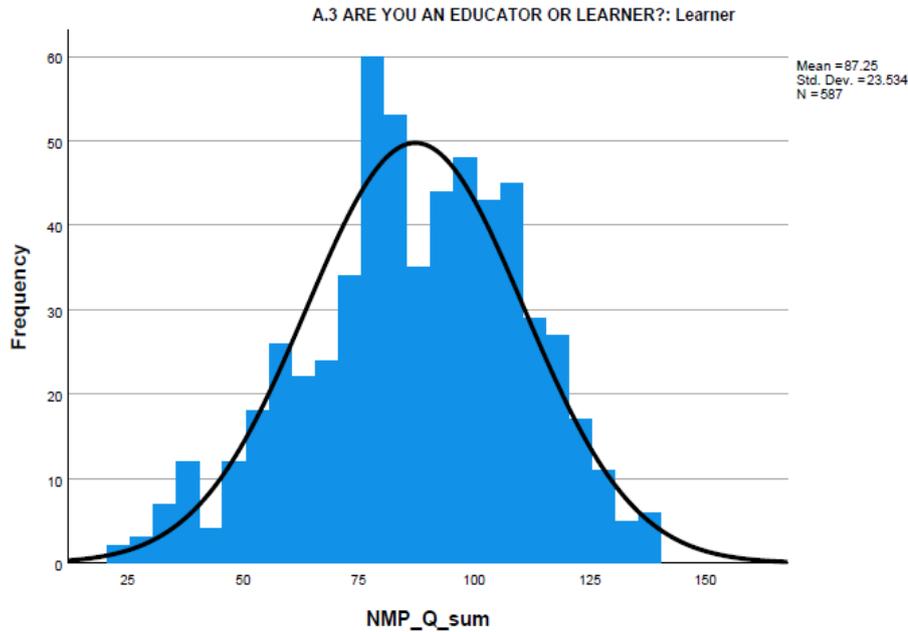


Figure 3 Distribution of summated average score for nomophobia (Learners) (n = 587)

A mean of 87.25 and a standard deviation of 25.53 were reported for learners. It is therefore evident from these statistics and the histogram that learners generally reported a moderate level of nomophobia.

Findings Obtained from Qualitative Data Analysis

In this qualitative case study, the researcher applied both template and editing strategies to conduct data analysis. This approach allowed the researcher to use both predetermined and non-predetermined categories during the ongoing process of data analysis. The data segments with same meanings were grouped to form codes based on similarities in sentences or phrases. The sentences and phrases with the same meaning were grouped to represent the main themes and categories.

It emerged from the data collected during the interviews that all educators' use their mobile phones to access work related information. Mobile phones allow them to stay in touch with people from work, their families and friends. Educators do not feel comfortable without access to the information they regularly check up on and they spend a lot of time on their mobile phones. Learners spend a considerable amount of time on their mobile phones. Furthermore, unlike educators, learners have an affinity for games and spend a lot of time playing these games. When I enquired further, Learner 01, Learner 02, Learner 10 and Learner 11 admitted to being addicted to these games. Learner 10 used the words '*I am hooked on Criminal Case.*' They explained that the games are designed to improve their own scores or take them to the next

level, so it is very difficult to leave the game. Learner 15 said, *'I was addicted to these games at some point in my life, but currently I stopped since I started with grade 12.'*

Learner 04 said he found it relaxing to play games but stressed the importance of discipline, *'I find it relaxing to play FIFA, and although it is distracting, I am disciplined enough to stop when I need to.'* Learner 05 said, *'The games refresh my mind,'* Learner 11 said, *'it relieves stress,'* and Learner 15 said, *'it calms you down.'* These were the expressions used by learners to justify the playing of games. Learner 06 reminds me that learners have a life outside school and interests outside of school subjects and curriculum, *'The nice thing about having a cell phone is that you can still do things that are outside school but that are still informative. I am a person who is interested in the moon, space and the whole universe.'* Learners used their mobile phones to access resources for schoolwork, and to keep in touch with family and friends.

Educators were vocal about the fact that discipline is a key to an excellent quality of education, *'Discipline is very important for me'* (Teacher A); *'Discipline. If a school has good discipline all other things will fall into place'* (Teacher C); *'also revealed that , if learners display good manners.'* (Teacher F). Furthermore, educators have indicated that assessment results and high-stake exams like matric results are important factors in determining if a school is a good school (Teacher B, Teacher C, Teacher D and Teacher F). Good educators who have access to resources and plan their lessons are important for a good quality of teaching (Teacher A, Teacher C and Teacher F). All the educators agreed that being able to use a mobile phone in the classroom can improve the quality of the lesson. Teacher A warns that there must be proper controls in place while Teacher D warns that educators must know what they are doing and how to use technology. The educators were clear that using the internet in lesson preparation and delivery was vital for the teaching profession. Teacher B says that if educators' usage of their phones is geared towards education and not socialising then it can be beneficial to improving the quality of lessons.

Other important factors that learners cited for a good quality teaching were focus on the part of the learners; preparedness of educators; good matric results indicated a good school; educators must know their work; access to information and resources; educators' interaction with the learners; educators' understanding of the learners; dedication of the educator and having an engaged class. Learners were not in agreement whether using mobile phones for teaching would improve the lessons. Learners were concerned that constant checking of the mobile phone by the educator would break the flow of the lesson. Some learners felt that educators would be distracted by phone calls and messages, while others felt that educators would exercise self-control. Learner 13 sums it up nicely, *'As much as learners can be distracted, so too can teachers. It differs from individual to individual.'*

All educators agreed that if learners were allowed mobile phones in the classroom, the quality of learning would improve and that there are benefits of using mobile phones in the classroom. Teacher F said, *'I'm a huge advocate for the use of cell phones in the classroom. We need to equip our learners with the skills needed for the future.'* Educators were vocal about restrictions that needed to be imposed.

Learners held the same opinion as teachers and said that the quality of education is dependent on the amount of discipline that learners have. Learners used the following phrases and words to expand on discipline, *'Focused'* (Learner 01 and Learner 03); *'Self-motivated'* (Learner 02); *'Pay attention'* (Learner 03, Learner 08 and Learner 10); *'Sit still and listen'* (Learner 06); *'Dedicated'* (Learner 13) and *'Make an effort'* (Learner 14).

Discussions

According to the findings of this study nomophobia (short for ‘no mobile phobia’) is the fear of, or anxiety caused by not having a working mobile phone. The anxiety of not having a working mobile phone can lead to panic attacks and other psychological disorders. Nomophobia has been referred to as dependence on mobile phones or an addiction to mobile phones. It is defined as the feelings of discomfort, anxiety, nervousness or distress that result from being out of contact with a mobile phone. Nomophobia is the irrational fear of being without a mobile phone or being unable to use a mobile phone for some reason. The DSM-5 Anxiety work group has proposed to consider the inclusion of nomophobia in the DSM-5. Nomophobia can be considered an addiction which is used to refer to a chronic condition where there is an unhealthily powerful motivation to engage in a particular behavior. The size and convenience of mobile phones means that they can be taken anywhere and gratify compulsions at any time.

The quantitative phase (Phase 1) of the study revealed that prevalence level of nomophobia among educators and learners was 0 % for absence of nomophobia, 15.9 % of respondents displayed a mild level of nomophobia, 57.9 % of respondents displayed a moderate level of nomophobia and more than one third of respondents (36.7 %) displayed severe nomophobia. The global prevalence of nomophobia by severity revealed that the prevalence of moderate to severe nomophobia is 70,76%. The prevalence of severe nomophobia is approximately 21% in the general adult population (Humood et al., 2021)The quantitative phase (Phase 1) further revealed that educators displayed higher levels of nomophobia as compared to learners.

The qualitative phase (Phase 2) elaborated on and gave meaning to the quantitative phase (Phase 1). The qualitative phase (Phase 2) indicated that educators use their mobile phones for work related information. Mobile phones allow them to stay in touch with people from work, their families and friends. Educators do feel uncomfortable without access to the information that they regularly check up on and by their own admission do spend a lot of time on their mobile phones.

Unlike educators, learners have an affinity for games and spend a lot of time playing these games. Learners admitted being addicted to the games. Furthermore, learners used their mobile phones to access resources for schoolwork, and to keep in touch with family and friends.

The quantitative phase (Phase 1) of the study revealed that more than 75% of educators (75,8%) agreed with the statement ‘Teachers can improve the lesson if they can use their mobile phones in the classroom’ compared to the percentage of learners that agreed with the statement (54,9%). Approximately half of the teachers (51,5%) agreed with the statement ‘I feel teachers would be distracted with a mobile phone in the classroom’ as compared to learners (46,2%). This indicates that educators and learners feel that a mobile phone in the classroom can be a useful educational resource, but they also seem to be weary of the fact that there can be distractions that emanate from the use of mobile phones in the classroom. It is therefore evident from the statistics that respondents generally reported a moderate level of acceptance for the use of mobile phones in the classroom to improve the quality of teaching.

The quantitative phase (Phase 1) also revealed that less than half of the teachers (45,5%) agreed with the statements ‘If learners are allowed to have mobile phones in the classroom it can improve the quality of learning’, and the statement ‘If learners have mobile phones in the classroom, it will encourage sharing of knowledge’ (45,5%). This is in comparison to learners where almost two third of the learners agreed with these statements (62,0% and 67,6%). More than half of the teachers (54,5%) and more than three quarters of learners (76,5%) agreed with the statement ‘If learners have mobile phones in the classroom extension activities can be given from websites.’ It is therefore evident from the statistics that

respondents generally reported a moderate to high level of level of acceptance for the use of mobile phones in the classroom to improve the quality of learning. The results as reported indicated that the usage of mobile phones in the classroom and the quality of learning seemed not to be consistent across educators and learners with significant differences reported in mean levels.

The quantitative phase (Phase 1) of the study merely suggested whether distractions caused by mobile phones in the classroom can be managed. It was revealed that more than half the educators (54.5%) agreed with the statement ‘Distractions caused by mobile phones in the classroom can be controlled,’ while almost two-thirds (63.4%) of the learners agreed with the statement. It is therefore evident that respondents generally reported a high level of acceptance for managing the impact of mobile phone distractions in the classroom. The results as reported indicated that managing the impact of mobile phone use in the classroom seemed to be consistent across educators and learners.

Furthermore, the quantitative phase (Phase 1) indicated that as educators’ personal perceptions of nomophobia increase, the use of mobile phones on the quality of learning decreases. Also, as educators’ personal perceptions of nomophobia increase, managing the impact of mobile phone use decreases. However, learners felt that the use of mobile phones on the quality of learning increases as managing the impact of mobile phone use in the classroom increases.

The qualitative phase (Phase 2) of the study gave meaning to the quantitative phase (Phase 1). The qualitative phase (Phase 2) of the study revealed that educators acknowledged that mobile phones have an important role to play in education, but they all stressed the importance of having proper protocols in place for the use of mobile phones to be beneficial in education. Learners, however, were not too keen on having mobile phones in the classroom. Learners reiterated that if mobile phones are used in the classroom there must be controls over access to certain websites. Learners mentioned having a limited amount of time spent on mobile phones in the classroom. Once again, learners and educators spoke about self-discipline when managing the use of mobile phones in education.

Recommendations

Nomophobia might not yet be classified as an official mental health condition, however, experts agree this issue of the technology age is a growing concern that can affect mental health. A phobia can be treated by a therapist using:

- **Cognitive behavioral therapy** – this can help a person to manage negative thoughts and feelings that arise when a person thinks about not having their mobile phone.
- **Exposure therapy** – this can help a person to face their fears through gradual exposure to it. If a person has nomophobia, they will slowly get used to the experience of not having their phone. This may seem frightening at first, especially if one needs their phone to stay in touch with loved ones, but the goal of exposure therapy isn’t to completely avoid using one’s mobile phone; instead, it helps one learn to address the extreme fear that one experience when one thinks about not having one’s phone. Managing this fear can help a person use their phone in healthier ways.

A person can also take steps to cope with nomophobia on their own by trying the following (Munoz, 2018; Legg & Raypole, 2019; Cherry, 2020):

- Mobile phones should be switched off at night to get more restful sleep. If an alarm is needed to wake up, keep the phone at a distance, far enough away that it can’t easily be checked at night.

- Try leaving mobile phones at home for short periods of time, such as when you make a grocery run, pick up dinner, or take a walk.
- Spend some time each day away from all technology. Try sitting quietly, writing a letter, taking a walk, or exploring a new outdoor area.

It is evident from the findings that educators and learners do suffer from mild, moderate and severe nomophobia. Nomophobia affects the quality of work delivered by both educators and learners. The Department of Education must recognize that nomophobia does affect teaching and learning and must provide counselling therapists for educators and learners alike. Furthermore, a policy for the use of mobile phones must be introduced for both educators and learners.

The framework policy for educators must be designed to inform all educators of expectations regarding the use of mobile phones during working hours. It is intended to offer guidance to educators with regard to what constitutes appropriate (and inappropriate) use of mobile phones within the workplace. There must be consequences if educators breach the mobile phone policy, and this would include being invited to an investigatory meeting to ascertain the facts and details about the incident. Thereafter, disciplinary measures will be taken.

Developing a mobile phone policy at school is essential to ensure learners and educators are able to enjoy the instructional benefits associated with using mobile phones, while also ensuring the mobile phones don't become a distraction from learning. The policy for learners must be designed to inform all learners of expectations regarding the use of mobile phones in the classroom. It is intended to offer guidance to learners with regard to what constitutes appropriate (and inappropriate) use of mobile phones within the school.

If learners violate the school's mobile phone policy, the following may occur:

- First offense: The learner's mobile phone will be confiscated by a staff member and held in the main office until the end of the school day. Before being allowed to pick up their phone at the end of the day, learners must discuss and review the mobile phone policy with a staff member.
- Second offense: The learner's cell phone will be confiscated and held in the main office until the end of the school day. The learner's parents will be contacted and informed of the refusal to follow the school's mobile phone policy. Learners may pick up their phones following after-school detention.
- Third offense: The learner's mobile phone will be confiscated and held in the main office until the learner's parents are able to come to pick it up. The learner will receive after-school detention and will be prohibited from bringing their mobile phone back on school grounds for two weeks.

The school administration will reserve the right to adjust these consequences on a case by-case basis if needed. For example, extreme behaviours that break the law or engaging in bullying or harassment of other learners may result in suspension or expulsion.

Limitations of the Study

The study is not without limitations. It took place at one selected public secondary school in Gauteng (the case); thus, the results may not be generalizable to other public secondary schools in Gauteng or in South Africa. The study did ignore the context of real life and it must be made clear that participants cannot be studied meaningfully by ignoring the social, economic and political structures that continue to affect all aspects of education.

Even though anonymity was assured to all learners, learners' parents and educators, some may have felt uneasy about rating their observation regarding the negative aspects of nomophobia and the quality of teaching and learning. Hence, they may have demonstrated subject effects, which behaviors that may not reflect the practical situation. This situation may have caused errors in the results.

All educators and learners were from a single case. It must be noted that educators and learners from different schools may have differing views on the impact of nomophobia on the quality of teaching and learning.

Conclusion

Attempts to ban or limit student use of cell phones in schools are likely to be controversial, to say the least. Even so, school officials can prevail and limit the amount of time spent policing learners with regard to mobile phone policies by taking the time to plan carefully. This study revealed that educators and learners are all prone to some extent of nomophobia, however, a noteworthy fact is that almost one third (32.9%) of respondents displayed severe nomophobia. The aspect of great concern is that the school at which the research was conducted had a ban on the use of mobile phones in the classroom. This indicates that educators and learners are spending a lot of their time outside school on their mobile phones. This time can be used constructively for improving the quality of teaching and learning. Monitoring the learners smuggling mobile phones in the classroom poses more discipline problems for the school staff. School staff has to police learners on the use of mobile phones in the classroom when mobile phones are actually banned.

Educators and learners alike feel that mobile phones should be used for educational purposes in the classroom. Educators and learners were vocal that mobile phones can be brought into school with certain controls and restrictions. This study further looked at creating a framework for a mobile phone policy for educators and a mobile phone policy for learners that would allow educators and learners to use their mobile phones in school with some provisions. This framework for a policy will allow educators and learners to have some introspection regarding their personal mobile phone usage.

Moving forward, educators and learners must be given support if indeed they do suffer from severe nomophobia. This support must be provided by the Department of Education as they do with other mental disorders. Controlling the use of mobile phones in general can improve the quality of teaching and learning and create a pleasurable work environment.

In sum, the cumulative evidence of the risks and detrimental impact of mobile phones on learners learning, well-being, and safety suggests that educators must address these devices' presence and roles in schools more seriously and systematically than has been the case to date. While some educators and learners believe that mobile phones can be used to enhance and boost instruction, others fear that the negative effects of their use in class clearly outweigh the potential benefits. Finding the right balance for learner mobile phone use in schools is a daunting challenge calling for a community-wide approach involving learners, parents, educators, school governing bodies, the Department of Education, and broader social awareness about the effects of mobile phones on youth achievement and well-being. Consistency, and follow-through, in expectations is of fundamental importance if learners are to respect rules limiting their freedom and if learners are unlikely to abide by rules that are not consistently enforced. Consensus on the appropriate role of mobile phones in schools is unlikely to emerge in the near future. Even so, creating policies and procedures regulating educator and learner use

of mobile phones in schools is an important step in addressing and ameliorating the growing concerns about their misuse in and around schools, their effects on mental health, and maintaining schools as safe and orderly places for teaching and learning in which all learners can succeed.

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