Evaluating Mobile Centric Readiness of Students: A Case of Computer Science Students in Open-Distance Learning

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ABSTRACT
This study examined the mobile centric readiness of Computer Science students at an Open and Distance Learning (ODL) university in South Africa. Quantitative data was captured through a survey and a total of 129 students responded to the survey. The mobile centric readiness of students was evaluated based on factors that could affect the readiness of students in accessing and interacting with mobile centric services. The factors were Infrastructure ownership, Knowledge of device functionality, Sources of internet access, Mobile phone internet activities and Context of use. The results of this study confirmed that the students satisfied the readiness factors and they are ready to use mobile phones as tools for information access and interaction in learning.

Categories and Subject Descriptors
K.3.1 [**Computers and Education**]: Distance learning

Keywords
Mobile centric services, mobile information access, mobile readiness

1. INTRODUCTION
As the mobile phone market matures in terms of penetration rate, subscription rate, handsets functionality and mobile centric services, it is evident that mobile phones are now part and parcel of many people's daily lives. Statistical reports estimated that the number of global mobile phone subscriptions would have reached 7 billion by the end of 2014 [16]. Globally, this reflects a ratio of one mobile phone per person. High mobile phone penetration has made it possible for digitally alienated communities in developing countries to have improved access to business, health, education and social services. Indeed, this has truly transformed the lives of many people in developing countries. However, the benefits of mobile phone penetration have not been homogeneous across the spectrum of people's lives, in particular, in education relative to business and social life. Even though mobile phones are presumed to be appropriate information access and interaction tools in teaching and learning [15, 26, 27], their uptake has not been fully realized. The slow growth has recently been identified as a cause of concern as it could derail the opportunities presented by mobile

phones as tools for inclusive information access and interaction in learning [4, 15]. Several factors have been identified as restraining full adoption of mobile centric services in education and they include technological factors, economic factors and human factors. This study focused on the human factors as a source of slow growth in the adoption of mobile centric services in teaching and learning. Among all the stakeholders who could be implicated in the adoption of mobile centric services in teaching and learning, this study focused on the readiness of students as critical adopters of the technology. Hence, the objective of this study is to examine the readiness of students at a Higher Educational Institutions (HEI) for accessing and interacting with mobile centric services in teaching and learning. The objective translated into the following research question, "How ready are the students in accessing and interacting with mobile centric services at the university?"

2. Readiness
Higher educational institutions in developing countries could benefit from mobile phone information access and interaction technologies effectively if the students are ready to use the technologies. The readiness of students in using ICT related technologies such as mobile cellular phones is known as e-readiness [23]. The term E-readiness has received numerous definitions. Sachs [23] defined e-readiness as, "the degree to which a community is prepared to participate in the Networked World. It is gauged by assessing a community's relative advancement in the areas that are most critical for ICT adoption and the most important applications of ICTs." Maugis *et al.* [20] defined e-readiness as, "the ability to pursue value creation opportunities facilitated by the use of the Internet". E-readiness has also been defined as, "the extent to which a market is conducive to Internet based opportunities, taking into consideration the quality of IT infrastructure, government initiatives, and the degree to which the internet is creating commercial efficiencies [12]." The definitions of e-readiness revolve around the preparedness of people in using ICTs to pursue value creation opportunities in their daily lives. Hence, students at HEIs in developing countries need to be ready to exploit the opportunities presented by mobile phones as information access and interaction tools in teaching and learning. The following section reviews frameworks for e-readiness as way of understanding the concept.

2.1 Frameworks for evaluating readiness
This section reviews four e-readiness frameworks/models and they are an *Eclectic model for assessing e-learning readiness in the Iranian universities* [9], *Readiness combination model for acceptance of e-learning* [3], the *Nilson and Carlos Machado Model* [19], and the *Haney model* [14]. The frameworks were designed for evaluating the readiness of institutions in implementing e-learning. The consensus among the models for

evaluating e-readiness is that when introducing e-learning at an institution, all the stakeholders that would be involved in the project have to be assessed for e-readiness [3, 9, 14, 19]. The stakeholders include administrative managers, academics, and students. Common dimensions among all the proposed models for evaluating e-readiness were technological infrastructure, finance, human resources and course content [3, 9, 14, 19].

The frameworks do not directly inform on the readiness of students in using mobile centric services in teaching and learning but they have some common dimensions that are important to this study. The dimensions could be summarized as follows:

- *Technological infrastructure readiness* assessment focuses on evaluating if existing infrastructure could sustain the new intervention. If the existing infrastructure cannot provide or sustain the services of a new intervention, the institution would be expected to provide the required infrastructure. This dimension is important in this study because students would only use mobile phones as information access and interaction tools if they own or have access to the devices.

- *Human resources readiness* focuses on evaluating the incumbents in terms of motivations, attitudes, resistance and skills required in providing e-learning. With respect to human resources readiness, Machado [19] recommended that prior to the implementation of e-learning services, it is important to understand the administrators' vision, their abilities in implementing policies and strategies that inform e-learning. The policies and strategies would be expected to capacitate other stakeholders in terms of motivation and training.

The *Readiness combination model for acceptance of e-learning* [3] had a unique dimension not included on other models, which is the business dimension. The business readiness of an institution could be measured by assessing its goals, needs, motivators, resources and constraints with respect to e-learning. Two of the models, the *Eclectic model for assessing e-learning readiness in the Iranian universities* [9] and the *Readiness combination model for acceptance of e-learning* [3] suggested that the e-readiness evaluation could be based on the culture of the institution. Institutional culture could be evaluated in terms of its response to technology adoption, staff training, budget, provision of resources and management support.

The cultural aspect is important in this study because it is essential to understand the mobile centric culture of students in evaluating their readiness. The mobile centric culture of students is engraved in the Generation –Y [21] culture. The Generation-Y people have been described as people born with technology [22], have a high aptitude for technology use, propensity for establishing social networking groups [18, 25], appreciate device portability and quickly turn to internet for information access [25].

The technological culture and infrastructure ownership of students are the basis of mobile centric readiness evaluation in this study. Hence, the mobile centric readiness of students in this study was evaluated based on ICT infrastructure ownership, Knowledge mobile phone functionality, Sources of Internet access, Mobile phone internet activities and Context of use.

3. Research Methodology

This study evaluated the readiness of Computer Science students at an ODL university in South Africa. This was achieved by employing a quantitative survey to collect data from students. The design of the questionnaire was informed by the findings of the literature review analysis, and findings from the previous exploratory qualitative surveys conducted in another study targeted at a different group of students [6]. The questionnaire had 10 closed ended questions, structured as multiple choice questions and Likert scale rating. The questionnaire measured the readiness of students based on students' ICT infrastructure ownership, Knowledge of mobile phone functionality, Sources of internet access, Mobile phone internet activities and Context of use. The questionnaire was distributed electronically to students using Google forms. The students were invited to respond to the survey questions through emails.

3.1 Participants

This study employed purposeful sampling to select the survey respondents. Purposeful sampling was explained as [7] "the researcher intentionally select participants who have experienced the central phenomenon under study" The students who have experienced the phenomena under study are University of South Africa students. The university has a student population of over 250,000 students spread across six colleges. Due to large student population, it was too expensive and time consuming to collect data from all the students, hence this study employed purposeful sampling to collect data.

A total of 129 participants completed the questionnaire. The participants were third year students registered for a database course in the School of Computing at the university. The gender ratios of the students were 32% female and 68% male.

3.2 Data analysis

After collecting data from the survey, data was cleaned in preparation for analysis. Data cleaning involved verifying that each question had a valid response. The questionnaire captured both nominal and ordinal data. Descriptive statistics was employed to analyze both the nominal and ordinal data in order to give a summary of how the group responded to each of the survey questions. Factor analysis was employed to uncover trends that were not visible from descriptive analysis.

4. Results

The results focus on the mobile centric readiness of students in terms of ICT infrastructure ownership, Knowledge of mobile phone functionality, Sources of internet access, Mobile phone internet activities, and Context of use.

4.1 ICT infrastructure ownership

The questionnaire included a question that measured the infrastructure owned by the students. Determining the ICT infrastructure ownership helped in comparing mobile phone ownership against other devices owned by the students. The participants were asked a multiple choice question that required them to choose the ICT devices that they own from a list by a "*yes*" or a '*no*". The question reads, "*Which of the following electronic communication devices do you own?*"

The results of data analysis are presented in Table 1. The results established that all the students (100%) owned a mobile phone. The second ranked device owned by the students was a laptop (81%), followed by a printer (54%), a desktop computer (53%) lastly an iPad/Tablet (53%).

Table 1: Infrastructure ownership

Which of the following electronic communication devices do you own?	Yes
Desktop computer	53.1%
Laptop computer	81.3%
Printer	53.9%
iPad/tablet	18.8%
Mobile phone	100.0%

The results show that all the students owned a mobile phone irrespective of gender, age and funding of the studies. One of the measures of readiness [3] is infrastructure ownership, hence the results confirm that the students are ready to use mobile phones as information access and interaction tools.

4.2 Knowledge of mobile phone functionality

The questionnaire included two questions that evaluated students' knowledge of their mobile phone brands and functionality. The first question asked students to identify their mobile phone brands, *"What is the brand of your mobile cellular phone?"* The second question asked students to choose from a list of features with a *"yes", "no" or "I do not know"* to confirm if the feature is available on their phones. The question reads, *"Which of the following features are available on your mobile phone?"*

The data analysis results revealed that all the students identified the brands of their mobile phones. Figure 1 show that the popular mobile phone brands were Blackberry (33%), Samsung (29%) and Nokia (21%).
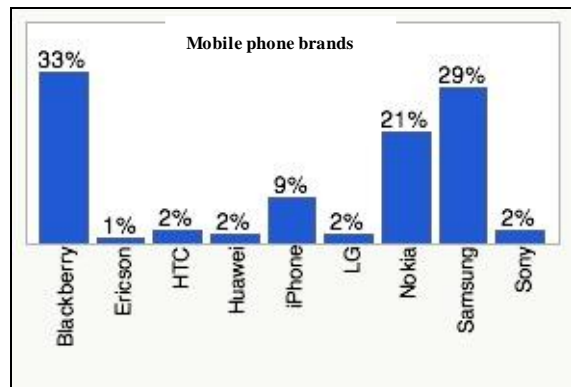
Figure 1: Mobile phone brands distribution graph

With respect to identifying mobile phone features, the descriptive statistical results are presented in Table 2. The table shows that the students identified features on their mobile phones as Internet access (97%), email (97%), camera (97%), video player (97%), apps download (87%) voice recorder (92%) and document reader (82%). It is important to note that all the students identified that their mobile phones had SMS, calendar and a clock. There were some features that other students failed to identify if they were available on their mobile phones, for example apps download (8%), voice recorder (3%), or document reader (9%). It was notable that some students' mobile phones had no internet access (3%), emails (2%), camera (3%), video player (3%), apps download (5%), voice recorder (5%) or document reader (9%).

Table 2: Mobile phone features

Which of the following features are available on your mobile phone?	Do not know	No	Yes
SMS	0.0%	0.0%	100.0%
Internet access	0.0%	3.1%	96.9%
Camera	0.0%	3.1%	96.9%
Video player	0.0%	3.1%	96.9%
Calendar	0.0%	0.0%	100.0%
Emails	0.8%	2.3%	96.9%
MP3 player	2.3%	3.1%	94.6%
Voice recorder	3.1%	4.7%	92.2%
Games	0.0%	3.9%	96.1%
Document reader	8.5%	9.3%	82.2%
Twitter	7.0%	10.9%	82.2%
Clock	0.0%	0.0%	100.0%
Maps	8.5%	9.3%	82.2%
Instant Messenger	11.6%	6.2%	82.2%
Apps download	7.8%	5.4%	86.8%

The results revealed that even though most students managed to identify most features on their mobile phones, a few students did not know if their phones had certain features or not. The readiness of students in using their mobile phones could be affected by the absence of some features. There are some students who indicated that their mobile phones do not have features such as Apps download or Internet.

4.3 Sources of Internet access

The questionnaire included a question that asked students to reveal their sources of Internet access. The question reads, *"Where do you access the Internet and how often do you do this per week?"* The question was based on a Likert scale rating and explored where the student access the Internet and their frequency of access. Understanding the sources of internet access helped in comparing mobile phone access readiness with other sources of internet access.

The data analysis results are presented in Table 3. The results established that 72.1% of the students had accessed internet from a computer at home more than four times per week and 9.3% had never accessed internet from a computer at home. It was noted that few students had accessed internet from Internet cafes or someone else's house. The results indicated that 4.7% of the students had accessed internet from the Internet cafes more than four times a week and 83.7% had never done that. With regards to accessing internet from someone else's house, 1.6% of the students had done that more than four times a week and 97.7% had never done that.

It was noted that students mostly access internet from their work place and mobile phones. The descriptive results in Table 3 show that 62% of the students had accessed internet at their workplaces more than four times a week and 31% of the students had never done that. Notably, 78.3% of the students had accessed internet from their mobile phones more than four times a week but 7.8% had never done that.

Table 3: Sources of internet access

"Where do you access the Internet and how often do you do this per week?"	Never	Once	Twice	Three times	More than four times
Computer at home	9.3%	5.4%	7.8%	5.4%	72.1%
Internet cafe	83.7%	7.0%	3.9%	0.8%	4.7%
Someone else's house	97.7%	0.0%	0.0%	0.8%	1.6%
Work place	31.0%	2.3%	1.6%	3.1%	62.0%
Mobile cellular phone	7.8%	7.8%	4.7%	1.6%	78.3%

The data analysis results revealed that a mobile phone is a device through which majority of students access internet. It was established that a significant number of students had accessed internet at their work places. It was noted that there were some students who had accessed internet from internet cafes and other people's houses.

4.4 Mobile phone internet activities

The questionnaire included a question that asked students to reveal internet activities that they usually do on their mobile phones. The question reads, "*As part of your normal routine, to what extent do you engage in the following activities on your mobile phone?*" The question was based on a Likert scale rating and required students to indicate the frequency at which they do an activity.

The data analysis results are presented in Table 4. The activities that the students often and very often engage with through their mobile phones included checking email (83%), replying emails (73%), viewing pictures received on a mobile phone (75%), taking pictures (76%), chatting with friends (74%) and searching internet for news (68%). Notably, there were some activities which some of the students had never done on their mobile phones. The activities included downloading videos (37%), downloading songs (32%), watching online videos (24%), searching for movies or films (32%) and surfing the web for leisure (26%).

Inspecting Table 4 shows that there were certain activities that the students tended to perform more often than others. Further investigation using Factor analysis was undertaken to see if there were some latent variables within the dataset. The following section presents the categories of the general mobile phone internet activities found from Factor analysis.

Table 4: General mobile phone activities

"As part of your normal routine, to what extent do you engage in the following activities on your mobile phone?"	N/A	Never	Seldom	Often	Very Often
Search internet for news	4%	8%	20%	22%	46%
Search internet for facts	6%	19%	25%	19%	31%
Search internet for health information	5%	15%	29%	25%	26%
Access sport results	6%	20%	26%	21%	26%
Search for movies or films	5%	32%	37%	12%	13%
Watch a video online	4%	24%	40%	14%	17%
Download videos	5%	37%	26%	16%	16%
Access and update social networking sites	4%	8%	21%	27%	40%
Check emails	4%	2%	12%	19%	64%
Reply emails	4%	3%	19%	19%	54%
View pictures on a mobile phone	4%	5%	16%	37%	38%
Download songs	4%	32%	32%	12%	19%
Take pictures	4%	5%	15%	31%	45%
Download documents	4%	16%	22%	23%	35%
Surf web	5%	26%	25%	21%	22%
Chat with your friends	3%	9%	13%	24%	50%

4.4.1 Categories of general mobile phone internet activities

The results of Factor analysis are presented in Table 5. The factors were determined based on the Eigenvalues, Cumulative percentage of variance, and the Scree plots. The Factor analysis extraction methods used was the Maximum Likelihood and the rotation method was Varimax. An initial analysis to get the eigenvalues for each factor extracted 3 factors with Kaiser's criterion of greater or equal to 1. The percentage variance for each factor was also recorded. The 3 factors had eigenvalues of 7.3205 (45.753%), 1.4975 (9.359%) and 1.0974 (6.842%). The 3 factors contributed a total variance of 61.95%. The 3 factors were returned for analyzing the data and the items with factor loading greater than 0.4 were considered to be valid. Table 5 shows the results after rotation.

Table 5: Rotated factor loadings of mobile phone activities

Item	Factor 1 (*Information gathering activities*)	Factor 2 (*Communication activities*)	Factor 3 (*Social connection activities*)
1. Search internet for news	**0.59**	0.42	0.23
2. Search internet for facts	**0.56**	0.19	0.15
3. Search internet for health information	**0.59**	0.34	0.25
4. Access sports results	**0.50**	0.27	0.22
5. Search for movies or films	**0.60**	0.17	0.04
6. Watch a video online	**0.65**	0.09	0.34
7. Download videos	**0.75**	0.13	0.12
8. Access and update social networking sites	0.26	0.31	**0.46**
9. Check emails	0.23	**0.84**	0.25
10. Reply emails	0.28	**0.81**	0.24
11. View pictures on a mobile phone	0.26	0.30	**0.66**
12. Download songs	**0.70**	0.19	0.23
13. Take pictures	0.12	0.09	**0.78**
14. Download documents	0.53	**0.52**	0.24
15. Surf the web	**0.55**	0.26	0.34
16. Chat with your friends	0.25	0.38	**0.45**
Eigenvalues	7.321	1.498	1.097
% Variance	45.75%	9.35%	6.84%
Cronbach Alpha	0.90	0.90	0.84

The factors that group under Factor 1 represented *Information gathering activities*. Factors that group under Factor 2 represented *Communication activities*. The factors that group under Factor 3 represented *Social connection activities*.

There were some overlaps on Item 1 (*Search internet for news or information on current events*) between Factor 1 and Factor 2, and Item 14 (*Download documents*) as shown in Table 5. In such circumstances, the items were classified based on either the highest score or on contextual perspectives. For example, Item 1 was classified under a factor with the highest score. On the other hand, item 14 was classified on contextual perspective.

Reliability analysis was applied to each of the factors identified during Factor analysis. The results show that all the factors were reliable, with high scores of Cronbach Alpha coefficients above 0.7. The values of the Cronbach Alpha coefficients were: $\alpha = 0.90$ for Factor 1 (*Information gathering activities*), $\alpha = 0.9036$ for Factor 2 (*Communication activities*) and $\alpha = 0.8434$ for Factor 3 (*Social connection activities*). The coefficient value of item 9.4 (0.9006) was above the overall reliability coefficient value by a margin of 0.006 and could have been deleted. Since the overall value of the coefficient of α is high, deleting the value would make a minimal contribution in improving the value of α.

4.5 Context of use

The questionnaire included a question that explored the context in which the students use their mobile phones. The question required the students to agree with a *"yes" or a "no"* on statements that described their mobile phone use. The question was, *"Please select from the statements below those that best describe your mobile phone use in the given context?"*

The data analysis results established that majority of the students agreed that they always carry their mobile phones (96%), they use their mobile phones when travelling (93%), they use their mobile phones to capture situated interesting events (84%), they use their mobile phones when doing other things and they use their mobile phones at bus or train stations as depicted in Figure 2.
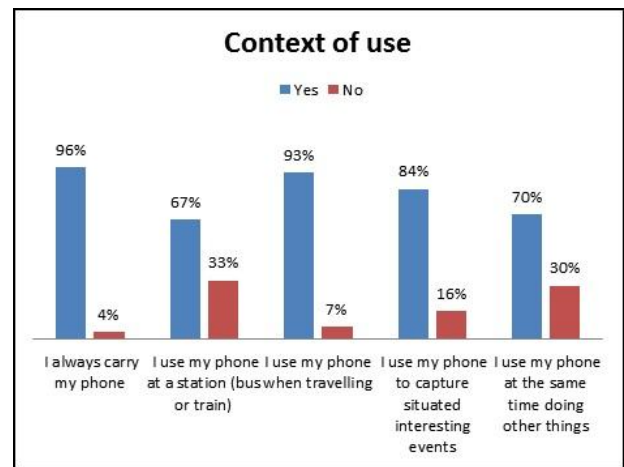

Figure 2: Context of use

The responses to this question indicate that the students always carry their mobile phones and they use them to accomplish a variety of tasks in different context. Additionally, the results confirm the notion that mobile phones helps with removing communication and interaction barriers.

5. Discussion

This section discusses the findings of the research question, *"How ready are the students in accessing and interacting with mobile centric services at the university?"* The discussion focuses on the mobile centric readiness of students in terms of ICT infrastructure ownership, Knowledge of mobile phone devices, Sources of internet access, Mobile phone internet activities and Context of use.

5.1 ICT infrastructure ownership

Infrastructure ownership is one of the factors that determine if a group of people is ready to use a technology [9, 19]. The results of this study established that mobile phones were the only IT devices owned by all the students if compared to other devices. Hence, students seemed to be ready to use mobile phones as information access and interaction tools because they already own the devices regardless of their gender and age. Comparing the ownership of

mobile phones (100%) with iPad/Tablets computers (20%), it is important to note that few students owned iPad/Tablet computers. Therefore, mobile phones are accessible to most students and present a readily available channel for information access and interaction in teaching and learning. This dispels the uncertainty that the provision of mobile phone services may introduce an information access and interaction divide [1, 2]. In the end, the results showed that all the students own a mobile phone and this presents an opportunity for providing students with mobile centric services at the university.

5.2 Knowledge of mobile phone functionality

All the students identified brands of their mobile phones and popular brands were Blackberry, Samsung and Nokia. With regard to the mobile phone features, majority of the students managed to identify most of the features on their mobile phones. All the students identified features such as SMS, Clock and Calendar. Even though most of the students identified most features on their mobile phones, a few students failed to do so. Some students could not identify whether their mobile phones had features such as a voice recorder, Twitter, Skype, Apps download, Instant messenger, or Maps. The findings of this study support the study which found that many people with mobile phones would not know if their mobile phones had internet or not [10]. Therefore, students who were not aware of all the features of their mobile phones were not fully ready to use their mobile phones.

The implications of the findings are that it would be problematic for an HEI to implement mobile information access and interaction services simply on the assumption that students have mobile phones. An institution should assess the types of mobile phones that the student population possesses and decide on an implementation strategy based on that. The mobile phone services that an institution provides are expected to be accessible by mobile phones with the least of the features. If some students are not knowledgeable about the features of their mobile phones, the institution would be expected to provide training on that aspect.

5.3 Sources of internet access

The results of data analysis revealed that students mostly access the internet from a mobile phone (78.3%), followed by a computer at home (72.15%) and at their work place (62%). The results showed that internet access on a mobile phone dominated internet access compared to other platforms. This reflects the readiness of students in utilizing mobile phones as internet access tools. The margins between mobile phone access (78.3%) and computer at home access (72.05%) were 6.15% and between mobile phone (78.3%) and work place (62%) was 16.3%. The margins are small and may suggest that even though mobile phones dominate internet access, the students also depend on computer access especially when they are at their homes or at their work places. This finding is in line with a study which found that even though students use their mobile phones to access the internet they often visit public internet access venues [11].

Inversely, the results established that some students have never accessed the internet from a mobile phone (7.8%), computer at home (9.3%) and computer at work place (31%). The results revealed that few students access the internet from Internet cafes (4.7%) or from other people's houses (1.6%). Presumably, the reason for accessing internet from Internet cafés or from other people's houses is that the students do not have access at their home. If such students have mobile phones with internet access, they would mostly access internet from a mobile phone.

5.4 Mobile phone internet activities

This study evaluated students' mobile phone internet activities as a way for measuring their mobile centric readiness. The data analysis results revealed that the students seemed to be ready to use their mobile phones as tools for information access and interaction. The Factor analysis results established that students' mobile phone internet activities clustered around three categories of activities, which are *Information gathering activities*, *Communication activities*, and *Social connection activities*. The discussion in the following sections focuses on each of these categories.

5.4.1 Information gathering activities

The information gathering activities that the students were familiar with included reading online news, searching the internet for facts to support an argument, searching for medical information, accessing sports results, searching for movies, just to mention a few. Information gathering was described as a situation where someone visits a web to purposively research on some topic or to collect data [24]. This study considers information gathering as a characteristic of students' readiness in using mobile phones as an information access and interaction tool. The results confirms that the students are mobile centric and mobile phones are an integral part of their daily lives [5, 11, 13, 28]. This suggests that if the university provides students with mobile phone services that enable them to gather information, the students should be ready to use the services.

5.4.2 Communication activities

The communication activities that the students were familiar with included SMS texting, telephone calling, instant messenger chatting, checking email, replying to email and downloading email documents. Earlier studies on information access and interaction [8, 17] identified communication as one of the reasons for accessing the internet. In this respect, the results of this study reflect that the students have some mobile phone communication experience, which implies that they could be ready to communicate with the university through mobile phones.

5.4.3 Social connection activities

The social connection activities that the students were familiar with included visiting social networking sites, chatting with friends, uploading and viewing pictures. The experiences gained when interacting on social media platforms is important in that it improves students' communication and interaction, sharing of content and knowledge, collaboration and virtual presence. Additionally, technologies that are available on social media platforms could enable students to have synchronous peer mentoring and group work. Therefore, the findings of this study have shown that the students are ready to use their mobile phones for information access, interaction and sharing resources.

5.5 Context of use

The data analysis results showed that most students always carry their mobile phones and use them at any given time and at anywhere. The user context findings imply that if the students always carry their mobile phones, the university can provide students with mobile phone content and services, which they can access from anywhere. The students also indicated that they use their mobile phones when they are in public environments such as bus or train stations, and when they are travelling. If the students use their mobile phone to access and interact with information in any context, the assumption is that the students are ready to access and interact with university's information systems in any context.

6. Limitations of the study

The students were all from the School of Computing at an ODL university in South Africa. The technological aptitude of Computer Science students could be different from other students in different faculties at the university and could have influenced the presumed mobile centric readiness. Furthermore, ODL students may have a different mobile phone usage culture. Hence, more research is needed to generalize the findings. The study could be extended to the whole university or other universities, creating room for evaluating the mobile centric readiness of students in the context of developing countries.

7. Conclusion

This paper discussed the evaluation of mobile centric readiness of Computer Science students at an ODL university in South Africa. The results of data analysis established that the students have the required characteristics for being mobile centric. The characteristics were confirmed by the fact that all the students own a mobile phone. Notably, Tablet-PC's were much less common (only 18.8%). The results also confirmed that students have knowledge of the features of their mobile phones, they use their phones to accomplish a variety of activities and they interact with the mobile phones in different contexts. However, there were some students who did not use (or know how to use) all the features and since those could be critical features which the institution would have to make provision for support. The mobile phone factors identified could be useful in planning and managing the university's mobile use strategy since it allows prioritization of mobile phone usage activities. Therefore, this study informs the university on how they should approach the provision of mobile centric services to ensure that students do not resist the services

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