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Assessing the Technological Adeptness of University Students in Mauritius

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Abstract

The new generation of students who have grown up surrounded by technology, are often referred to as ‘digital natives’. Living in a digital world, it is quite normal for our young population to use emerging technologies in their daily life, be it the regular use of social networking sites like Facebook and Twitter or increasing number of videos being uploaded on You Tube or access to computers, laptops and mobile phones, to name a few. We find a similar growing interest in our young population in Mauritius. This has led to a debate whether there is a need for a change in our pedagogical models to integrate these emerging technologies in our teaching and learning process. There are limited empirical studies on our student population’s access and use of technological devices in education. This paper has as objective to get the answer from the target concerned. A survey of university students from public as well as private institutions in Mauritius was conducted to understand how technology is influencing their social and academic experiences. The results show a varied outcome in terms of usage and adoption of technologies by our young population in their daily activities compared to its use in their studies. While a certain portion of our so called ‘digital natives’ have adopted technologies in their regular activities, there is still some who are non-adopters. Educators and policy makers need to ponder over such diverged results as this may influence their decision while adopting online learning.

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1. Background

From the early 1980s a new generation of students has emerged in higher education. This new generation of students, often referred to as digital natives, have grown up surrounded by technology and are characterized by their ability to multitask, their dependence on technology to maintain social contact, their openness to share content and their ability to rapidly understand and adopt new technologies (Prensky, 2001; Dede, 2005). There is a need for universities to understand, how this new generation of students use technologies in their everyday life and in learning contexts before implementing new policies and practices. (Prensky, 2007), in his study states that digital natives are insistent for new technologies to “be used as part of their education, in part because they are things that the students have already mastered and use in their daily lives, and in part because they realize just how useful they can be.” Conforming to (Prensky, 2001), (Gros, 2003) and (Frands, 2000) agree that digital natives want to receive information quickly; be adept at processing information rapidly; prefer multitasking and non-linear access to information; have a low tolerance for lectures; prefer active rather than passive learning and rely heavily on communications technologies to access information and to carry out social and professional interactions. Convenience, connection and control are the main characteristics driving the Net Generation to adopt information and communication technologies and this is increasing steadily (ECAR, 2008). However, can this be considered as a general case for all students of the Generation Y? (Kennedy, et al., 2008) showed in his study that not all students have access to, or use the latest technologies. Therefore, it is imperative for educators to better understand the social and academic practices of those students who are at the centre of higher education’s services, policies and facilities.

Many assumptions have been made regarding the use of technologies by the Net Generation students. However studies have come to show that these digital natives are significantly diverse in nature, especially where their academic use of technology is concerned (Lang, 2007 ). This divergence in technological experiences and ability challenges the implementation of technology enhanced education at the level of universities (McLoughlin & Lee, 2008 ). (Kuh, 2003) concluded in his research on student engagement that universities should not develop policies and practices in the absence of student engagement data or other comparable information. Some research on the Net Generation claim that digital technologies are pivotal in their daily lives (Strauss & Hoew, 2006 ). While others like (Kennedy, et al., 2006) questions the digital literacy of these Generation Y and their interest in the use of digital technologies for academic purposes. They found that first year students in Australian universities did not use technologies as widely as expected. In fact (Oblinger & Oblinger, 2005) found in his survey of American students that mature students balancing work, family and study were more likely to use technologies as learning support. University students are diverse in nature, presenting factors such as socio economic conditions, access to services and infrastructure and personal interest in technologies (Gibbons, 2007). The (ECAR, 2008) report states that while students may have access to technologies such as laptops, they decide not to bring them to campus due to issues like weight or fear of theft. The same results are seen for the use of smart phones in the field of mobile learning (NMC, 2010). Studies in the US showed a high usage of social networking sites by students, however not for educational purposes (Ellis & Goodyear, 2010)

In the trend of adopting technology enhanced education, it is crucial for educators to understand students and their academic and social practices with regards to technology use. This need is felt even in Mauritius, as we embark in adopting technology as learning supports. The objective is to provide a contribution as evidence base to support the implementation of learning technology infrastructure at higher education level. For the purpose of this study, an online survey was conducted with target the new generation of students from both public and private tertiary institutions in Mauritius. This paper contributes to a better understanding of students’ experiences and expectations of technologies in their daily life and for their study purposes, with a view to have a more holistic approach to designing a technologically based infrastructure.

2. Context of study

For the purpose of this paper, Mauritius is taken as a case study. Mauritius is a small island state with a population of 1.3 million inhabitants. From (Internet World Statistics) as at June 30, 2012, the internet users totaled to 458 927, representing 35% of the population and as at December 31, 2012, the Facebook users totaled 367,900,
representing a 28% penetration rate. However this data is representative of the whole population. There is a lack of data representing the use of specific technologies by the digital natives.

Educators in Mauritius have tried to cater to the needs of the new learner, the digital native, who defined by (Prensky, 2001) is a young technology savvy learner who has the mindset and motivation to learn in diverse circumstances and environments. (Prensky, 2010) came to the conclusion that these learners did not want to be lectured. They wanted to work with their peers, cooperate as well as compete with them and preferred learning that was relevant. The use of numerous technologies contributes to cater to the preferences of these 21st century learners.

Mauritius has taken a gradual and evolutionary approach to the development of open and distance learning through examples of Mauritius College of the Air, today known as Open University of Mauritius, the Centre for Professional Development and Lifelong Learning and the Virtual Centre for Innovation and Learning Technologies as well as other private institutions. The technologies used to offer distance education have evolved from print, radio and TV to virtual and online learning. Policy makers have implemented projects like NEPAD eSchools Mauritius and SANKORE Project which heralds digital transformation in our schools. The aim being to impact ICT skills to learners in primary and secondary schools in preparation for the technology enhanced higher education. Educators need to be able to develop the 21st century skills in their students.

3. Methodology

With a need to provide insight in learners’ use of technologies for learning and its comparison to use in everyday life, an anonymous online survey was conducted documenting the experiences of university students. This paper covers a preliminary study of learners over a short period of time. Students were contacted through their respective email addresses and through the use of Facebook groups. The design of the survey was adapted from the previous digital native studies including (ECAR, 2008; Gosper, et al., 2011). The first part collected the demographics of the respondents, namely gender, age and educational qualification. Age was very important in this survey to make sure that the respondents fit within the target participant group, that is, students born from 1980 onwards, the age group identified in the literature as being the generation most likely to be digital natives.

For each of the following sections in the survey, students were asked to rate their use of technology on a five point scale, from never/rarely, a few times a semester, a few times a month, a few times a week, one or more times a day. Respondents were presented with a list of technology and quantitative results were gathered about students’ access to technology in general, for social and work purposes, for learning, to communicate with teaching staff and to communicate with peers for learning purposes. Additionally students, in cases where they were enrolled in blended or online learning environments, were asked about their use of learning management systems, namely Blackboard/Web CT. Finally at the end of the survey the students were asked to rate on a five point scale from very dissatisfied, dissatisfied, neutral/mixed, satisfied and very satisfied their satisfaction with services and support obtained for learning, through the use of technology. Respondents were surveyed on their use of familiar established technologies like email, SMS, and mobile phones to Web 2.0 technologies.

4. Analysis and Discussion

The survey was open to all students considered to be digital natives, also called as Generation Y. Data was collected about respondents’ access to technology, use of technology for their social and work purposes, their experience of using technologies for learning purposes, how students communicated with their lecturers and peers, their expectations of what the university should provide and experience of the quality and consistency of use of ICT on the university campus. As a preliminary study, it was conducted over a short period of time and the responses yielded a data set of 71 participants. The findings were as follows:

4.1. Profile of respondents

The respondents were aged between 19 years to 33 years, fitting our aimed target group of digital natives. Fifty two percent of male respondents and 48% of female students participated in the survey. In relation to their
educational qualification, 47 students were degree holders, with an equivalent 11 students in certificate and diploma level and 2 students with a post graduate degree.

4.2. Technology used in general

Participants were asked to rate on a five point scale from never/rarely to one or more times a day, how often they have access to a list of technologies as listed in Table 1.

| Table 1. What computing equipment do you have access to? | N = 71 |
|--------------------------------------------------------|--------|
| Appendix A. Desktop computer at home                   | Appendix B. 36% |
| Appendix C. Laptop computer at home                    | Appendix D. 62% |
| Appendix E. Laptop on campus with no internet connection| Appendix F. 25% |
| Appendix G. Laptop on campus with wireless internet    | Appendix H. 33% |
| Appendix I. Computer labs on campus                    | Appendix J. 24% |
| Appendix K. Computer at work                           | Appendix L. 30% |
| Appendix M. Mobile phone with internet access          | Appendix N. 49% |
| Appendix O. Gaming console with internet access        | Appendix P. 19% |

The result of a ‘few times a week and one or more times a day’ is considered for analysing the data collected in the following sections. Other than the technologies listed for their preference, students also mentioned use of iTouch and iPad tablet.

| Table 2. Use of Technologies for Social and Work Purposes | N = 71 |
|----------------------------------------------------------|--------|
| SMS (Text Messaging)                                    | 63%    |
| Social Networking Sites                                 | 59%    |
| Internet search engines                                 | 56%    |
| Email                                                    | 55%    |
| Collaborative/conference technologies                   | 55%    |
| Mobile phone for voice calls                            | 55%    |
| Mobile phone with internet access                       | 51%    |
| Instant messaging                                       | 49%    |
| Podcasts or webcasts                                    | 49%    |
| Presentation software                                   | 33%    |

The top 10 technologies used most commonly by respondents for social purpose and work were as shown in the table 2: SMS (text messages) 63%, Social Networking Sites 59%, Internet search engines 56%, Email 55%, Collaborative/conference technologies 55%, Mobile phone for voice calls 55%, Mobile phone with internet access 51%, Instant Messaging 49%, Podcasts or webcasts 49% and presentation software 33%.

Other technologies like use of interactive whiteboards 9%, use of RSS feeds to subscribe to information sources 21% and electronic databases 29% were not the favourite among the respondents.
4.3. Technology used for learning

So as to explore the present and future use of technologies in learning, students were asked about their most often use of technologies for their academic purposes. The technologies listed down to them brought the following results, from most used to least used: Use of search engines to find information 60%, use of software specific to their field of study 41%, use Social Networking sites for group work activities with other students as part of your studies 40%, use a mobile phone to access or contribute study related information on the internet 40%, Use web conferencing or video chat to communicate and collaborate with other students on assignments and projects 36%, use library online resources (e.g e-journals/electronic databases) to find information 35%.

| Table 3: Use of Technologies for Academic Purposes                                      | N = 71 |
|---------------------------------------------------------------------------------------|--------|
| Use internet search engines to find information                                        | 60%    |
| Use software that is specific to your field of study                                   | 41%    |
| Use Social Networking sites for groupwork activities with other students as part of your studies | 40%    |
| Use a mobile phone to access or contribute study related information on the internet  | 40%    |
| Use webconferencing or video chat to communicate and collaborate with other students on assignments and projects | 36%    |
| Use library online resources (e.g e-journals/electronic databases) to find information | 35%    |
| Watch or listen to podcasts created by lecturers                                       | 27%    |
| Watch or listen to course related podcasts created by other students                  | 23%    |
| Read and comment on blogs created by other students                                   | 23%    |
| Use a tablet computer (e.g iPad) to access or contribute study related information on the internet | 23%    |
| Develop a blog that is shared with other students in your class                       | 20%    |
| Create audio/video materials and share them with other students online as part of your studies | 19%    |
| Develop an e-portfolio as a record of learning and experiences for professional or employment purposes outside the university | 16%    |

4.4. Technology used for communicating with lecturers

Respondents were asked in this section to rate the technologies they most often use to contact their lecturers. Results obtained were as follows: the most common being email use 37% to the least common being use of instant messaging with 11%. The data gathered can be depicted in the following Fig. 1 showing the five most commonly used technologies by students.
4.5. Technology used for communicating with peers

Communication between peers for educational purposes are principally done through the use of technologies like social networking sites 52%, face to face meetings 51%, instant messaging 49%, text message 45% and email 41%. The difference between the communication to lecturers and to peers lies in the formality of the technological medium. While email was considered the most often used technology to contact lecturers, in the case of communicating with other students for learning purposes email on the first five technologies chosen remains the last option. Noteworthy is the prevailing use of face to face meetings whether to contact lecturers or peers.
Fig. 3 shows the comparison between the communication technologies used by students to contact their lecturers and their peers. Social Networking sites like Facebook are a favourite between students while face to face meetings are still very popular both for communicating with lecturers and with their peers.

![Fig. 3. Comparison of technologies to communicate with lecturers v/s peers](image)

### 4.6. Use of the Learning Management System

Respondents were asked under this section to rate their use of the Learning Management System, given as example Blackboard/WEBCT. Out of the 71 respondents, only 59 students answered this section. This indicates the use of blended or online learning by this particular group of students. The data gathered have been summarised in the following table:

| Activity                                                   | N = 59 |
|------------------------------------------------------------|--------|
| Online unit outline                                       | 22     |
| Online readings and links to other course materials        | 34     |
| Online access to lecture recordings                       | 22     |
| Discussions (posting comments, questions and responses)   | 22     |
| Taking quizzes for assessment purposes                    | 20     |
| Taking quizzes for self test purposes to gain feedback    | 18     |
| Submitting assignments online                             | 17     |
| Getting assignments back online from instructors          | 16     |
| Online sharing of your own work with other students       | 17     |
| Keeping track of your progress and your grades online     | 25     |
| Mail tool for contacting staff and fellow students         | 22     |

It can be observed that the Learning Management System is mostly used to access materials online about the course. Students also use it to keep track of their progress and grades. The submission of assignments online and
feedback from lecturers is quite on the low side 17%. This however can be resulting more from the lecturers’ limited use of the Learning Management System for these purposes.

4.7. Satisfaction with services and support for learning

The result of ‘satisfied’ and ‘very satisfied’ is considered for analysing the data collected. One observation as shown in figure 4 showed that respondents were highly satisfied with their level of skills in using the various technologies (51%) and they were least satisfied with the availability of wireless networks on campus (16%). They also consider themselves to be fast learners of technology with 50% satisfaction. The learners also welcome the flexibility to choose the technologies they prefer for studying and communicating (46%).

Overall the findings presented show that learners of Generation Y use the familiar technologies like laptop and mobile phones quite fluently, while the latest technologies for e.g tablets are being adopted at a slower pace. As already presented by (Kennedy , et al., 2008) students use more tried and true technologies that facilitate easy access, convenience and connectedness. This is shown in this survey as well, where students are increasingly adopting the use of the technologies for communication between lecturers and peers. The survey results also show a high usage of social networking sites by students, which is indeed a point to ponder for implementation of technologies and use by lecturers. Learners are in need of flexibility to be able to balance work and studies and technology enhanced learning contributes to fulfill this need. While students are adopting open distance learning with more use of technologies, it is observed that face to face remains an important requirement of learners. They prefer a combined online experience with face to face meetings, whether for their meetings with lecturers or with their peers. As concluded by (ECAR, 2008), students of the Net Generation look out for convenience, connection and control and this is shown through this study with learners use of the Learning Management System for ease of access of information and course materials and also for communication purposes. Learning technologies are being used by the Net Generation and the level of satisfaction of these technologies is hindered mainly by infrastructure issues like poor wireless networks and campus support facilities. A cautionary note when interpreting these findings.
is that this study covered one public and one private higher education institution and was done over a short period of time. For a wider picture, the study can be expanded throughout the university students’ population to keep up to date with the changing trends in technology use. The importance of this study is to understand students’ use of technologies in their everyday life and for their academic purposes as policy makers implement a technology enhanced learning environment.

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