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Net Generation Education: Are we ready?

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Abstract

The belief that learners of future generation are individuals who grow up in an environment surrounded with digital facilities, also known as Net Generation, has gained much attention from the education service providers, particularly the Universities. This concern has called for University management to rethink the provision of appropriate teaching and learning environment for the growing population. Many claim that individuals from the Net Generation (Net Geners) behave differently as opposed to the previous generations from their personal lives, social interaction to work and would be actively using technology for their studies many educational institutions have embarked on adopting technology in the classrooms. Past researches in the western context have reported although these digital natives are relatively apt users of technology the use of technology varied significantly among users of similar age group. Meanwhile, previous studies in the Asian context suggested there seemed lack of evidence to confirm the uses of appropriate technology for educational purposes, rather much of the activities were on watching movies or playing games. This exploratory study aimed to investigate the students' perception of the teaching and learning environment that would be appropriate for the next generation. It is imperative that faculty fully understand the characteristics of the Net Generation and their preferred learning methods as to ensure students obtain good learning experience. By means of questionnaire surveys data were collected from students of various levels of study in the social science field. The study reported that the University students match most of the Net Geners characteristics and list the preferred methods of learning. We discuss the results of this study and suggest some directions for future research.

Keywords: Net Generation, Education

1. INTRODUCTION

It is believed that individuals from same generational cohort develop certain shared “generational characteristics”, which effect their worldview – be it at a personal level, family, society, as well as in learning and building their future endeavors. Today, universities are highly populated by individuals who belong to the ‘Net Generation’, a label used to describe today’s young adults along with other terms including ‘Digital Natives’ (Prensky, 2001) and ‘Generation Y’ (McCrinkle, 2006). This generation is said to have been shaped by their experiences of having

grown up surrounded by the digital technologies and often claimed as being digitally literate (using technology, communication tools, or networks to search and create information).

As the Net Geners have been raised in a media-rich environment in which the popularity of the internet and wireless technology suggests that students are constantly connected via peer-to-peer communication (Windham, 2005) since their formative year, a number of assumptions have been made both about their attitudes towards learning generally and their use of new technologies specifically (Aviles, 2012). For instance, it is assumed that they expect “technology will be an important part of their education” (Philip, 2007, p.1). They are also said, to expect immediate answers, fast access to information, assertive information seekers, preferring social activities, being active experiential learners together and adept at multitasking, which some see as a sign of a short attention span (Barnes et al., 2007; Berk, 2009; Prensky, 2001; Romero et al., 2013).

Although most Net Generation authors assume that digital literacy and media rich environment shape young people’s behavior in general various studies showed that the use of these media is not transferred to learning preferences. Furthermore, according to Prensky there is a widening gap between today’s university’s students and their teachers, so – called ‘Digital Immigrants’. Prensky (2001) has argued, therefore, that lectures need to better understand the Net Generation profile and learning preferences as to tailor their teaching to match the skills, experiences and expectations of their ‘digital native’ students (Kennedy et al., 2007; Hernaus et al., 2014; Romero et al., 2013).

2. LITERATURE REVIEW

Defining Net Generation

Researches in the past used various labels to this generation by trying to define their chronological context as well as their characteristics. Among the terms commonly found are, Digital Generation (Tapscott, 1998), “Millennials” (Martin & Tulgan, 2001), the “NetGen”, “Digital Native”, “Generation Y”, “Echo Boomers”, and “Baby Buster” (Matulich et al., 2008; Pelton and True, 2004; Bell et al., 2011; Aviles, 2012). Besides, there are differing opinions regarding the start and end dates that comprise the Net generation, from being born between 1977 and 1994-1995 (Paul, 2001), to between 1982 and 2000 (Bell et al., 2011) or between 1986 and 2005.

At present, most universities are populated with cohorts from this generation. There seems to be a consensus that Millennials have higher chances of enrolling in college than previous generations (Paul, 2001; Romero et al., 2013). The size of this generational cohort is over 80 million people which is larger than the Baby Boom generation (Howe and Strauss, 2000; Romero et al., 2013). Moreover, there is an agreement among faculty that the Net Generation students are behaviorally different from the previous generations, that of generation X or Baby Boomer whom most of the teaching faculty members belong to (Aviles & Eastwan, 2012). Consequently, changes are needed in teaching to effectively serve these students’ needs (Hernaus et al., 2014) and better communicate with them (Aviles & Eastwan, 2012).

Thus, given and the differences between it and the prior generations who are now teaching them, insight on how to effectively communicate and work with these students in the social science classroom is vital.

Characteristics of Net Generation and Preferred Learning Methods

Extant literature described the characteristics Net Generation. For example, Howe and Strauss (2000) introduced seven descriptors of Net Gen students: their parents have thought them that they are “special”, they have been “sheltered” by their helicopter parents, they are “confident” though that they can change the world and feel a sense of social responsibility, they are socially and “team-oriented”, they are high “achievers” (not in the traditional sense but in the idea that they expect meaningful experiences that allow them work/life balance), they feel “pressured” to perform and mature, and finally they are “conventional” in that they like to know what exactly to expect in any situation (Debard, 2004; Howe and Strauss, 2000; Aviles & Eastman, 2012)

Hernaus and Vokic (2014) describes Net Geners as most educated and technological savvy, multitasking capabilities, look for meaningful diverse, interesting and challenging work, positive (can-do) attitude, achievement/result-oriented, motivated workers, seek personalized career development, risk takers, embrace change, need clear goals and detailed-oriented instructions, need new experiences and training opportunities, seek constant feedback and instant gratification, leadership by pooling others (collaborative decision making), accustomed to almost egalitarian relationships, loyal if satisfied at work, seek employability instead of job security (loyal to their careers not employers).

Drawn upon previous studies (Berk 2009; Eubanks, 2003; Debard, 2004; Howe and Strauss, 2000; Aviles & Eastman, 2012; Hernaus & Vokic; 2014) this study proposes 12 common characteristics emerge that have a direct bearing on learning (Berk, 2009) as described below:

- 1) Technology savvy: having grown up with the technology, the Net Geners’ familiarity with most forms of gadgetry listed previously is second nature. The technology affect everything they do and buy. they expect information to be at their fingertips. However, they are not necessarily “net savvy” (Lorenzo & Dziuban, 2006). They are exposed to tons of information, but lack an understanding of how to find, evaluate, use, and present that information. They need to be thought information literacy and strong critical thinking skills (Oblinger & Hawkins, 2006; Rookman & Associates, 2004).
- 2) Relies on search engines for information: about 86% of Net Geners begin research searches for everything with search engines like Google (OCLC, 2006). They have an “ease-of-use” mentality. Their high comfort level with technology has fostered a false sense of ability, such that they routinely overestimate their skills at finding and evaluating inline information (Manuel, 2002).
- 3) Creates internet content: They are not only avid users of technology, with 90% using the internet to assist with homework; they also contribute to its content. About 57% design and write Websites, post blogs with pictures and original artwork, and make videos for YouTube daily.
- 4) Operates at speed : This generation grew up with the quick pay-off world of video games, MTV, the internet, and ultra-fast speed of action films (Prensky, 1998, 2006). They are used to the instantaneity of hypertext, downloaded music, iPhones in their pockets, a library of resources on their laptops (Prensky, 2006). They prefer random access, graphic-first, active, connected, fun, and fantasy activities (Foreman, 2003; Prensky, 2006). They have adapted to speed and even thrive on it. That translates into their “need for speed” in everything they do

by themselves and in their relationships. They must be actively engaged, otherwise boredom and frustration will take over.

- 5) Constantly seeks feedback: this characteristic is part of the “Trophy Kid” mentality (Alsop, 2008a). The Net Geners want to be recognized for their efforts and achievements. Receiving regular and, of course, speedy feedback on their performance is important at school. They prefer objective methods of assessment and explicit guidelines in how to make As (Lowery, 2004), which are inconsistent with most performance assessments. Their needs online are met and satisfied quickly. However, when they carry this need into other areas, such as school, the gratification with their work isn’t so instant. Grades on test and assignments are not posted with the same rapidity as an amazon purchase or MapQuest directions. Their lack patience can create frustration and boredom.
- 6) Experiential learners: They prefer to learn by doing rather than being told what to do or reading text or manuals. They are kinesthetic, experiential, hands-on learners. They must be engaged, constantly connected with first-person learning, games, simulations, and role playing (Junco & Mastrodicasa, 2007; Oblinger & Oblinger, 2005a; Tapscott, 1999). With their Nintendo mentality, they will jump right in and do what is necessary to solve a problem using trial and error, failing, starting over, and so on; they’ll just play with software, hitting the keys until they figure it out (Prensky, 2006).
- 7) Multitasks on everything: They can naturally do several tasks easily at the same time. The Net Geners can move quickly from one activity of medium to another, such as using IM, chatting with their friends on a cell or smart phone or iPhones, and e-mailing all at once, while surfing the Net and watching TV or doing homework (Junco & Mastrodicasa, 2007; Prensky, 2006; Roberts, 2005). Mixing play and work is common. It’s part of their lifestyle.
- 8) Communicates visually: They are visually literate, comfortable in an image-rich rather than text-only environment. Many don’t like to read books, especially textbooks, although they do it when required (Vaaidhyanathan, 2008). They perceive print as expensive, boring, and a waste of time (Gomez, 2007). Instead, they prefer visuals, graphics, and images of any kind, such as icons, videos, and photos. They are accustomed to entertainment, speed, and accessing music, video, games, and information their own way. They prefer interactive media rather than passive TV. For example, online games provide that interactivity; they have experience with massively multiuser games, and participate in virtual worlds, such as Second Life (Gibson, Aldrich, & Prensky, 2007). These virtual worlds are immersive, animated, and 3D environments (Oblinger, 2008a).
- 9) Emotionally open: They express their feelings easily. They are open to meeting new people, sharing personal information, and digital storytelling online in blogs, wikis, Facebooks, Myspace, or other social media (Junco & Mastrodicasa, 2007; Lenhart, Rainie & Lewis, 2001;Oblinger, 2008b; Oblinger & Oblinger, 2005b). Despite the hours that they spend in social media communications, they also gravitate towards activities that promote and reinforce in-person conversation, interaction and collaboration (Howe & Strauss, 2000; Junco & Mastrodicasa, 2007; Manuel, 2002; Ramaley & Zia, 2005; Windham, 2005).
- 10) Prefers teamwork and collaboration: As stated above, the Net Geners have strong social tendencies and need for interpersonal interaction, both online and face-to-face (Junco & Mastrodicasa, 2007; Ramaley & Zia, 2005, Strauss & Howe, 2006; Tapscott, 2009; Windham, 2005). They prefer to work in teams rather than alone. Collaboration enables their “collective intelligence” to emerge through the pooling of knowledge, research, arguments, and insights from diverse groups of people (Jenkins, 2006a).

- 11) Goal-oriented: They feel pressure from their Boomer parents to succeed at whatever goals they set (DeBard, 2004). They are goal oriented- setting college, career, and life goals. Some even have five-years plans and are considering how they will balance their school and/or work with family commitments. Being able to accomplish these goals and efficiently do what needs to be done is more important than accumulating a bunch of facts (Frاند, 2000). They focus on short-term achievement and grades at the expense of critical thinking skills and deep learning. They have been made aware of how challenging and competitive the job market is going to be, especially to prepare for job descriptions that don't exist yet and to adapt when chosen career paths cease to exist (Carlson, 2005).
- 12) Personalized interactive experience: the Net Geners like to learn at their own pace. Faculty need to provide some flexibility, such as having a period of several days to access and complete an assignment rather than only one specific time when it can be accessed (Aviles & Eastman, 2012).

From the above description it is imperative for faculty to determine the profile of Net Gen students they are servicing as such understanding would entail better communication with the students and effective teaching strategy. However, the profile described above is derived from past researches which were conducted mostly in the Western region. Limited studies on examining the characteristics of Net Geners as well as their preferred learning methods from an East Asian perspective have been found. Hence, we pose the first and second questions for this study:

RQ1. Do the University students fit the Net Generation profile?

RQ2. Which learning methods are preferred and perceived effective in the students learning?

Net Generation Use of Technology in Learning

Earlier studies suggested that Net Generation student (Net Geners) who are specially recognized as the “tech- savvy and immersed in technology in the digital world” (Tapscott, 1998; Bajt, 2011) communicate well through multimedia. They claimed that learning, for this generation, has moved into web-based and the social media such as YouTube and Facebook (Conole et al., 2007).

However, more recent studies have reported the fact that despite having extensive skills in technology use has not been linked to students' use in academic activities: a transfer of the abilities gained from using the computer to learning does not seem – or at least not to the degree expected – to take place (Aviles & Eastman, 2012; Romero et al., 2013). The use of the computer for school assignments done at the university is regarded as merely a tool to access course materials. Possessing a high degree of digital literacy or e-literacy does not mean that the wish to transfer the e-methods into a “new learning style”. Most studies show that Net Geners do not consider the use of technology at university as something indispensable (Bennett, Maton, & Kervin, 2008). In fact students that participated in the mentioned studies are far from asking their teachers to change their practices; they seem to agree with traditional pedagogies that use fewer technological tools to show content (Margaryan, Littlejohn, & Vojt, 2011; Romero et al., 2013). Thus, technology should not be used without a purpose; it must enhance learning and demonstrate connection to the course objectives and learning outcomes (Aviles & Eastman, 2013). Hence, it is imperative for lecturers/professors to fully understand the extent to which the Net Gen students are using technology in their learning as to enable the faculty members better

communicate and effectively use technology in the classrooms. Therefore, this study asks the third question:

RQ3. What are the preferred technological tools used by students in their learning?

3. METHODS

Questionnaire design

We designed the questionnaire used in this study based on the research objectives discussed. The questionnaire consisted of three parts. Section A consisted of information on the technology-based resources such as Ebooks, YouTube and Wikipedia as well as the learning methods preferred by the NetGeners in their course of study. The second part, Section B, was designed to assess the NetGeners characteristics as described in the extant literature. The respondents were asked to indicate their opinions pertaining to various variables being studied. A 5-point labelled Likert type scale was used with anchor from 1="Strongly Disagree" to 5= "Strongly Agree". The last part, Section C, consisted of demographic information such as a respondent's age group, level of study and duration spent on the computer per day.

Sampling

Primary data for this research were collected using a personally-administered questionnaire as this method will ensure a higher response rate. Research assistants helped in distributing and collecting the questionnaire in person. Secondary data for this study came mainly from newspapers, the Internet, journals, publications, magazines, books, and databases accessed via the Internet.

The respondents came from UNITAR International University main campus located in the state of Selangor where students are enrolled as a full-time study. Using a stratified random sampling questionnaires were distributed to UNITAR students from four different levels of study: Foundation (Pre-University), Diploma, Bachelor and Master. A total of 207 responded to the survey out of which 193 (93%) were usable for analysis.

4. ANALYSIS AND RESULTS

Respondent profile

Frequency distributions were calculated for all individuals in this research and are summarised in Table 1. As indicated, 65.3% of the respondents were female – a common scenario of students’ composition at Universities in Malaysia. Most of the respondents were between 18-23 years of age (83.9per cent), followed by the age groups of 24-26 and 27-29 at 11.4 per cent and 4.1 per cent, respectively. A majority of the respondents were from Business Administration programme (69.5%), followed by Information Technology (16.6%), Education (7.8%), Early Childhood Studies (4.1%) and Hospitality and Tourism programme (2.1%). Almost half of the respondents (49.2%) were at the Bachelor’s level, 28.5 per cent were at Diploma level, followed by Foundation (14.5%) and Masters level (7.8%). 58 per cent of the respondents had spent not less than 6 hours per day on the computer.

Table 1: Summary of Respondent Profile

	No.of Respondents	%		No.of Respondents	%
1. Gender			4. Level of study		
-Male	67	34.7	- Foundation	28	14.5
-Female	126	65.3	- Diploma	55	28.5
			-Bachelor	95	49.2
			-Masters	15	7.8
2. Age			5. Start using computer		
-18-20 years	73	37.8	- Before kindergarten	7	3.6
-21-23 years	89	46.1	- Primary school	90	46.6
-24-26 years	22	11.4	- Secondary school	49	25.4
-27-29 years	8	4.1	- University/college	24	12.4
-Above 30 years	1	.5			
3. Field of study			6. Time spent		
- Early childhood study	15	7.8	- less than an hour	16	8.3
- Education	8	4.1	- 1-3 hours	60	31.1
- Business admin/management	134	69.5	- 4-6 hours	52	26.9
- Hospitality	4	2.1	- 7-10 hours	28	14.5
- Information technology	32	16.6			

Net Generation Characteristics

To examine the RQ1, we used the descriptive statistics to identify the profile of our University students and matching the characteristics that of Net Geners.

The results have shown reasonably high mean scores for almost all items of the Net Gen characteristics. In particular, students are technology-savvy where they feel comfortable using the computer for various purposes which include social communication as well as for academic purpose (mean scores= 4.35; 3.91 and 3.99 respectively). Students rely heavily on search engines such as Google as the information resources (4.46) and create their own content in the social media space (4.20). The need for speed and instant feedback are demonstrated by the respondents through the mean scores of 3.89 and 4.02; and 4.05 respectively. They fit the description of kinesthetic and experiential learners, as evidenced from the mean scores for the following statements, “I prefer to learn by exploring and trying things out by myself (3.81); “I like a mixture of activities” (3.96); “I learn better by doing and participating in activities” (3.87).

Interestingly, students moderately prefer to carry out multiple tasks at the same time (mean score = 3.54). They desire social interaction, that is, enjoy meeting new people (3.83) and believe they perform better through teamwork and collaboration (3.93; 4.03; 3.84). Openness is demonstrated by the respondents’ preference in sharing information (4.04). Additionally, UNITAR students fit the profile of Net Geners by being goal-oriented (4.08) individuals and prefer the flexibility of learning at their own pace (3.73). Table 2 illustrates the items corresponding to the Net Gen profile and the mean score for each of the items.

Table 2: Mean Scores for Profile of Net Generation

No	Charateristic Item	Mean
1	Comfortable using computers, the internet and other information and communication technologies for variety of purpose.	4.35
2	Have own social space media (eg. Facebook, Twitter, YouTube, Instagram)	4.20
3	Prefer to get clear instructions and information before trying something new	4.12
4	Have clear goal in life	4.08
5	Interested and willing to do work that will help to learn course material	4.06
6	Prefer to receive feedback on my performance	4.05
7	Enjoy sharing what I know with others	4.04
8	Prefer mix of image, graphics or photos as opposed to text-only course materials	4.03
9	Consider class discussion in small group with other students to be a valuable way to learn the course material	4.03
10	Having solve problem in class helps learning the course material	4.02
11	Like immediate responses when communicate with colleague or lecturer	4.02
12	Comfortable using computers, tablet PC (iPad and alike) or cellphones in class	4.00
13	Feel like always connected to friends because of technologies such as cell phones and internet	4.00
14	Like mixture of activities (lecture, group work, discussion, problem solving)	3.96
15	Think that doing group work in class is valuable way to learn course material	3.95
16	Prefer to work in groups when doing course assignment	3.93
17	Find social media (Facebook, Twitter, YouTube, Blogs) as a good platform to share information	3.92
18	Comfortable using computers, tablet PC (iPad and alike) or cellphones when communicating with my friends or family	3.91
19	Prefer speedy feedback on my course performance	3.90
20	Learn better by doing or participating in activities	3.87
21	Prefer lecture as the format of class instruction	3.86
22	Working with other students on an in class activity helps feeling more prepared to participate in class discussion	3.84
23	Enjoy meeting new people	3.83
24	Prefer learn by exploring and trying things out by myself	3.81
25	Prefer multiple-choice exams compared with essay exams	3.80
26	Involve in projects and activities that make a difference to society	3.74
27	Perform better if classes can be tailored to own pace of learning	3.73
28	Find social media (Facebook, Twitter, YouTube, Blogs) as a good platform to learn about the course	3.63
29	Would like to design own course assignment/project	3.60
30	Learn from video clips that are related to course material	3.59
31	Used to doing several tasks at the same time	3.54
32	Enjoy reading	3.53
33	Think that frequents quizzes over the reading or assignments are a good idea	3.42
34	Prefer to have more frequent exams and a variety ways to earn grades	3.25

Preferred Learning Methods

RQ2 of this study concerns learning methods perceived effectiveness of by the Net Geners. From the survey it is reported that the most preferred learning methods and perceived effectiveness in improving knowledge about a course is class project paper (3.86). This is followed by the take-home assignment (3.82), case study analysis (3.76) and in-class quizzes (3.70), while online quizzes scored a lower mean (3.47). In terms of tests format it seems there is little difference between the mean scores although multiple-choice test reported a higher mean score of 3.82 while essay test received a mean score of 3.80. If compared between individual and group work, the Net Geners prefer and perceive the group work as more effective in improving their knowledge about a course (3.95 and 4.30 respectively). Table 3 shows the summary of mean scores for each of the learning methods items.

Table 3: Mean Scores for Preferred Learning Methods

No	Learning Method Items	Mean
1	Project paper	3.86
2	Take home assignment	3.81
2	Case study analysis	3.76
3	In class quizzes	3.70
4	Online quizzes	3.45
5	Multiple choice test	3.81
6	Essay answer test	3.80
7	Group course work	4.30
8	Individual course work	3.95

Preferred Technological Tools Used in Learning

To examine RQ3 we run the descriptive statistics and identified the mean scores for each of the items used by the study. It is evident that the most preferred tools used by the Net Gen students in searching for information in carrying out their course-related assignments is the search in, in particular Google (4.46). Other most commonly used tool is Wikipedia (3.94), followed by YouTube (3.69) and Web sites (3.67). Social media tools such as Facebook, Twitter, Blogs seemed less important in their course of study as well as e-journal, e-newspaper are considered as somewhat important. Table 4 depicts the summary of results.

Table 4: Mean scores for Use of Technological Tools

No	Learning Tools Items	Mean
1	E-books (ebrary, Unieci virtual, etc.)	3.30
2	E-Newspaper (Proquest, The Star Online, etc.)	2.50
3	E-Journal (Ebsco, Emerald, etc.)	2.45
4	Audio books	2.20
5	YouTube	3.69
6	Blogs	3.23
7	Facebook	3.00
8	Twitter	2.09
9	Google	4.46
10	Wikipedia	3.94
11	Web sites (corporate, government)	3.67

5. DISCUSSION AND CONCLUSION

Based on the analysis of data we can generally affirm that UNITAR students fit the profile of Net Generation. Specifically, we found consistent evidence to support the claim that Net Gen students are tech savvy and feel comfortable using the computers even in the classrooms. In relation to this, students find that search engines such as Google, Wikipedia and You-Tube as the most useful tools they would use when working on their course assignments. This condition may pose challenges to some faculty members who do not keep up with the use of “new” information technology. It is advised that lecturers take into consideration the sources of information students would be familiar with in designing course assignments whilst encouraging them to seek information from other sources such as E-journals and E-newspapers. From the University management perspective, reasonable policies pertaining to the use of computers and related gadgets in the classroom should well address the changing students’ behaviour, so long as the use of these technologies does not overtake the essence of learning outcomes.

It is notable the need for speed and feedback are shared among the respondents of the survey. They appreciate feedback on their course performances and expect to receive feedback from their lecturers almost immediately. Indeed, as goal-oriented individuals Net Geners always seeking to do better in the next attempt– the-Nintendo-game-attitude, and not knowing how they perform may lead to impatience or even frustration. However, the real experience in the University education may not match students’ need for speedy feedback due to the existing delivery system (class size and faculty workload). One of the ways to alleviate students’ eagerness for speedy feedback is to design a mix-method of assessment between automated grading or feedback and the conventional grading.

Evidences from this study indicated that respondents are experiential (kinesthetic) learners and sociable individuals which fit the Net Gen profile. Since kinesthetic learners have short-time span of attention learning classes should be well mixed with various activities – lectures, group discussion, presentation, role play and so forth. Faculty should consider designing more project-based assignments and preferably activities which require them to work in teams.

Interestingly, this study does not provide the support for studies which claimed that Net Geners would be actively using the social media for academic purpose. Although the respondents believe that social media is a good way to share and communicate with peers the media (Facebook, blogs, twitter) is not perceived as an important tool in enhancing their knowledge about a course. The finding of our study parallels the studies done by Kennedy et al. (2007), Aviles and Eastman (2012), and Romero et al. (2013). Additionally, this study reported contradicting findings that of previous studies in relations to the Net Geners preference for objectivity and would prefer multiple-choice over essay-typed test. The result showed that respondents regarded multiple choice and essay tests as almost equally preferred methods of learning, as indicated by the

This study is a research-in-progress which aims at examining the profile of the current students in UNITAR main campus. The generalizability of this study is limited due to the relatively small sample size and data came only from the main campus. The respondents were mostly from the business programme. It should be carried out into a larger study involving a larger sample size which extends to other campuses in Malaysia and from other fields of study within the University. As well, further studies should examine the readiness of the lecturers (faculty) as an integral part of the education delivery system. Moreover, a combination of quantitative and qualitative methods is deemed appropriate in addressing the specific research questions posed in this study.

References

- Aviles, M., & Eastman, J. K. (2012). Utilizing technology effectively to improve Millennials' educational performance: An exploratory look at business students' perceptions. *Journal of International Education in Business*, 5(2), 96-113.
- Bajt, S. K. (2011). Web 2.0 technologies: Applications for community colleges. *New Directions for Community Colleges*, 2011(154), 53-62.
- Barnes, K., Marateo, R.C. & Ferris, S.P. (2007). Teaching and learning with the net generation. *Innovate*. 3(4).
- Bell, C. J., Dinwiddie, D. L., Miller, N. A., Hateley, S. L., Ganusova, E. E., Mudge, J., & Kingsmore, S. F. (2011). Carrier testing for severe childhood recessive diseases by next-generation sequencing. *Science Translational Medicine*, 3(65), 65ra4-65ra4.
- Berk, R. A. (2009). Teaching strategies for the net generation. *Transformative Dialogues: Teaching & Learning Journal*, 3(2), 1-23.
- Carlson, S. (2005, October 7). The net generation in the classroom. *The Chronicle of Higher Education*, 52(7), A34–A37.
- Conole, G., de Laat, M., Dillon, T., Darby, J. (2007). 'Disruptive Technologies', 'Pedagogical Innovation': What's new? Findings from an in-depth study of students' use and perception of technology. *Computers & Education*, 50, 511–524.
- DeBard, R. (2004). Millennials coming to college. *New directions for student services*, 2004(106), 33-45.
- Folley, D. (2009). The lecture is dead long live the e-lecture. In *8th European Conference on E-Learning, University of Bari, Italy, 29-30 October 2009* (p. 204). Academic Conferences Limited.
- Frاند, J. L. (2000). The information-age mindset: Changes in students and implications for higher education. *EDUCAUSE Review*, 35, 15–24.
- Foreman, J., Holm, W., Canning, C., Parish, B. H., Douglas, K., Scales, S. M. S., & McDougall, S. (2003). Next-generation. *Educational Technology versus*.
- Gomez, J. (2008). *Print is dead: Books in our digital age*. Palgrave Macmillan.

- Hernaus, T., & Pološki Vokic, N. (2014). Work design for different generational cohorts: Determining common and idiosyncratic job characteristics. *Journal of Organizational Change Management*, 27(4), 615-641.
- Howe, N. & Strauss, W. (2000). *Millennials rising: the next great generation*, New York: Vintage.
- Jenkins, H. (2006a). Collective intelligence vs. the wisdom of crowds. Henry Jenkin's Weblog retrieved July 22, 2009, from http://www.henryjenkins.org/2006/11/collective_intelligence_vs_the.html
- Jones, C., & Shao, B. (2011). *The Net Generation and Digital Natives: Implications for Higher Education*. Higher Education Academy, New York.
- Jones, C., & Cross, S. (2009). Is there a Net generation coming to university?.
- Junco, R., & Mastrodicasa, J. (2007). *Connecting to the net.generation: What higher education professionals need to know about today's students*. Washington, DC: Student Affairs Administrators in Higher Education (NASPA).
- Kennedy, G., Judd, T., Dalgarno, B., & Waycott, J. (2010). Beyond Natives and Immigrants: Exploring Types of Net Generation Students. *Journal of Computer Assisted Learning*, 26(5), 332-343.
- Kennedy, G., Dalgarno, B., Gray, K., Judd, T., Waycott, J., Bennett, S. J., & Churchwood, A. (2007). The Net Generation are not Big Users of Web 2.0 Technologies: Preliminary Findings.
- Lenhart A, Rainie L, Lewis O (2001) Teenage life online: the rise of instant-message generation and the internet's impact on friendship and family relationships. Pew Internet and American Life Project, Washington
- Lorenzo, G., & Dziuban, C. (2006). Ensuring the net generation is net savvy. *ELI White Paper Series*, (2).
- Manuel, K. (2002). Teaching information literacy to generation. *Journal of library administration*, 36(1-2), 195-217.
- Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & Education*, 56(2), 429-440.
- Martin, C. A., & Tulgan, B. (2001). *Managing generation Y*. Amherst, MA: HRD Press.
- McCordle M. (2006) *New Generations at Work: Attracting, Recruiting, Retraining & Training Generation Y*. McCordle Research
- Nicholas, A. (2008). Preferred Learning Methods of the Millennial Generation. *The International Journal of Learning*, (15)(6).
- Oblinger, D. (2008b). The next generation learner. Keynote address presented at the AASCU/EDUCAUSE/University of Central Florida Conference on Students, Technology, and Learning: Strategies for Success, Orlando.
- Oblinger, D. G., & Hawkins, B. L. (2006). The Myth about Student Competency. *Educause review*, 41(2), 12-13.
- Oblinger, D., & Oblinger, J. (2005a). Is it age or IT: First steps toward understanding the net generation. In D. C. Oblinger & J.L. Oblinger (Eds.), *Educating the net generation*. EDUCAUSE. Retrieved November 14, 2006, from <http://www.educause.edu>.
- Oblinger, D. C. & Oblinger, J. L. (Eds.). (2005b). *Educating the net generation*. EDUCAUSE. Retrieved November 14, 2006, from <http://www.educause.edu>.
- OCLC Online Computer Library Center (2006), "College students' perceptions of libraries and information resources: a report to the OCLC membership, Dublin, Ohio", available at [:www.oclc.org/reports/perceptionscollege.htm](http://www.oclc.org/reports/perceptionscollege.htm).
- Pelton, L. E., True, S. L. (2004). Teaching business ethics: Why gen y? *Marketing Education Review*, 14(3), 63-70.
- Paul, P. (2001). Getting inside gen Y. *American Demographics*, 23(9), 42-49.
- Philip, D. (2007). The Knowledge Building paradigm: A model of learning for Net Generation Students. *Innovate*, 3(5).

- Prensky, M. (2006). *Don't Bother Me, Mom, I'm Learning!: How Computer and Video Games are Preparing Your Kids for 21st Century Success and how You Can Help!*. New York: Paragon House.
- Prensky, M. (2001) Digital Natives, Digital Immigrants. *On the Horizon*. NCB University Press, 9(5).
- Prensky, M. (1998, September). Twitch speed: Keeping up with young workers. *Across the Board*. Retrieved September 6, 2007, from <http://www.marcprensky.com/writing/prensky%20-%20twitch%20speed.html>.
- Ramaley, J. A., & Zia, L. (2005). The real versus the possible: Closing the gaps in engagement and learning. *Educating International Journal of Technology in Teaching & Learning*.
- Rockman, I. F., & Associates. (2004). Integrating information literacy into the higher education curriculum: Practical models for transformation. San Francisco, CA: Jossey-Bass
- Roberts, G. R. (2005). Technology and learning experiences of the net generation. In D. C. Oblinger & J. L. Oblinger (Eds.), *Educating the net generation*. EDUCAUSE.
- Romero, M., Guitert, M., Sangrà, A., & Bullen, M. (2013). Do UOC students fit in the Net Generation profile? An approach to their habits in ICT use. *The International Review of Research in Open and Distance Learning*, 14(3), 158-181.
- Strauss, W., & Howe, N. (2006). Millennials and the pop culture: Strategies for a new generation of consumers in music, movies, television,, the Internet, and video games. Great Falls, VA: LifeCourse Associates.
- Tapscott, D. 2009. *Grown up digital: How the Net Generation is Changing Your World*. New York, NY: McGraw-Hill Professional.
- Tapscott, D. (1999) Educating the Net generation. *Educational Leadership*, 56(5), 6–11
- Tapscott D. (1998) *Growing up Digital: The Rise of the Net Generation*. McGraw-Hill, NewYork.
- Vaidhyathan, S. (2008, September 19). Generational myth: Not all young people are tech-savvy. *The Chronicle of Higher Education*, 55 (4), B7.
- Windham, C. (2005). Father Google and Mother IM: Confessions of a Net Gen Learner. *Educause Review*, 40(5), 43.