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A Conceptual Foundation for Smart Education Driven by Gen Z

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Abstract

The enhancement development of new technologies enables learning progress more efficiently, effectively, flexible and comfortable. Smart education concern with context-aware ubiquitous learning which include the interactions between learners and environments. The Ministry of Education is actively engaging in discussions towards realization of Education 4.0 in schools as have been done years ago by the EU countries such as Austria. It is therefore important to start investigating deeper on smart education to suite the digital natives. This paper discusses a conceptual foundations of smart education driven by Gen Z involving attitudes and proposed learning style about their educational experiences. In this study, both quantitative and qualitative methodologies will be applied to cross-validate findings via secondary basis, and questionnaires with related parties. These initial insights will be the starting point for higher learning institution begin to understand Gen Z's idea while preparing for their academic journey ahead.

Keywords: Smart Education, Gen Z, Learning Style, Education 4.0, Learning Technology.

Introduction

A generation illustrates the situation in which each individual has a unique life experience. It also describes who we are and how we see the world from his own glasses. Each generation has its own personality Lancaster (2004), When Generation Collide. Each generation has different beliefs, values, cultures, perspectives, favorites, skills and tricks on life and work. Although there is a difference or gap between the characteristics of each generation, it is not a barrier to achieving a common sense of success among generations.

Who belongs to Gen Z? According to Torocsik et al. (2014) Gen Z is a group born in 1998 to 2010. Gen Z is a generation of technology. They have started surfing the internet and the web over their ages since they have not spoken yet. Gen Z has guided and encouraged by parents to use social networking sites since childhood. In other words, the Gen Z grew in a world all connected with technology from the very beginning. Although Muhazir & Ismail (2012) there are concerns among parents when they find that their children spend too much time interacting online compared to the real world, the fact

is that technology is not a tool that is considered to be a bad thing and even facilitates the rapid movement and transmission of information. Hence, Gen Z sees the benefits of technology as a tool 'real and realistic' communication. They can still be with family members and friends all over the country, or even the whole world, without having to be in the same physical space. In fact, the way they communicate through short messaging system (SMS), WhatsApp, Skype and so on adding to the flow of dialogue include continuous real-time visual interaction.

Literature Review

The rapid progress of mobile, wireless communication and sensing technologies has enabled the development of context-aware ubiquitous learning (u-learning) environments which able to detect the real world learning status of students as well as the environment context. Hwang (2014) and Song (2013) claims that smart learning is context-aware ubiquitous learning. In other propose, Zhu et al. (2016) presented a concept of smart learning as follows; (1) focused on learners and content more than on devices; and (2) it is effective, intelligent, tailored learning based on advanced IT infrastructure. While Joon, Yang, & Kim (2010) proposed the feature of smart learning that is defined as self-directed, motivated, adaptive, resource-enriched and technology-embedded.

In Malaysia's context, the rise of technology in the 4th Industrial Revolution has handed another promising opportunity for postgraduate's student to collaborate with technology developers. Malaysia's Higher Education Ministry highlight the inspiration new culture of quality teaching and learning among students who are among of Gen Z. By designing and innovating towards Digital Transformation are seen to become a key competitive factor among Malaysia universities in Industrial Revolution 4.0 Of (n.d.). Even the Ministry of Education is actively engaging in discussions towards realization of Education 4.0 in schools as have been done years ago by the EU countries such as Austria Vassiliou, McAleese, & Chair (2014). It is therefore important to start investigating deeper on smart learning framework to suite the digital natives. Framework is presented to address the design and development considerations of smart learning environments to support both online and real-world learning activities reported by Hwang (2014). Boateng et al. (2016) described three essential elements in smart education: smart environment, smart pedagogy, and smart learner on research framework.

With Education 4.0 changing the education ecosystem which focuses on technologies will be mostly affect among universities student. Framework is vital for success of implementation of the delivery of new form of education. A strong framework is deemed necessary to suited with nine trends of Education 4.0. According to Smith & Nichols (2015), the generation after Millennials, Gen Z, which they defined as people born from the mid-1990s to the early 2000s, made up 25% of the U.S. population, making them a larger cohort than the Baby Boomers or Millennials. A 2014 study Gen Z Goes to College found that Gen Z students self-identify as being loyal, compassionate, thoughtful, open-minded, responsible, and determined. How they see their Gen Z peers is quite different from their own self-identity. They view their peers as competitive, spontaneous, adventuresome, and curious; all characteristics that they do not see readily in themselves. In a study performed by psychologists it was found that young people use the Internet as a way to gain access to information and to interact with others. According to a Northeastern University, Gen Z college students prefer intrapersonal and independent learning over group work, yet like to do their solo work alongside

others in a social manner when studying. Revolutionizing the educational system in many aspects was happen and alsorise in the popularity of entrepreneurship and advancements in technology, high schools and colleges across the globe are including entrepreneurship in their curriculum.

Issues

In recent years, the issues in education system arose, especially in Higher Learning Institution in Malaysia. One of the issues is a technique or approach being implemented in a common classroom environment which student is quite boring during learning. Coming face to face classroom have somehow to change in virtual environment due to the fact that teaching and learning can be dynamically transformed into the technological system.

Attitudes of Gen Z

According to Susana Costa et al. (2017) Gen Z is a group that was born this year 1998 to 2010. Gen Z is generation technology. They have started to know the internet and the web goes hand in hand with their age since then they are still small. Gen Z has been introduced with social networking world since childhood. Gen Z is a person born when the technology has master the world, therefore this generation known as the silent generation, generation quiet and internet. Gen Z, also called iGeneration or internet generation Linnes (2017). Gen Z has something similar generation Y, but Gen Z is capable apply all the activities in one time (multi-tasking) like: running social media use mobile phones, surfing using PC, and listening to music use the headset. Whatever is done mostly related to cyberspace. Since childhood, this generation has recognized the technology and are familiar with periodic advanced tools indirect effects on personality, in fact, technological capabilities they appear from birth like Facebook and Twitter for the first time out, millennial and older generations use it without thinking about its effect.

Over time, they realized that relaxation in life in the eyes of the public can with easy to haunt them. Gen Z has learn from this mistake and choose a more privacy platform and impermanent. Gen Z is known to be freer than that previous generation. They do not wait parents to teach things or give know them how to make a decision. When translated into the workplace, this generation is evolving to choose work and self-learning. Undoubtedly, Gen Z will be the most diverse generation entered a job in American history Union. They consist of various parts ethnic or ethnic minorities. They too grew up to receive more and more respecting the environment from generation to generation people before. Gen Z put money and work on the list priority. Of course, they want to make it differences, but life and development more important.

Fardouly et al. (2017) identified Smartphones and social media are not seen as devices and platforms, but more in the course of life. It sounds crazy, but some studies support this claim. A study by Goldman Sachs found that almost half of Gen Z are connected online for 10 hours a day or more. Another study found that one fifth of Z Gen experiencing negative symptoms when shunned their smartphone devices. Fast taste satisfied is not a word reflects the generation of Z. As much as 75% of the Gen Z is even interested in holding several positions at once in a company, if it can speed up a career they are. For Gen Z information and technology is something that has become part of brand life, because they were born where access to information, especially the internet has become a global culture, so things are it affects the values, their views and goals. Gen Z will also be a challenge new

to management practices within the organization, especially for resource management practices human beings.

Proposed Learning Style Driven by Gen Z

The Gen Z is the term used to refer to those born after 2000. In terms of learning, Gen Z certainly has different learning styles from previous generations. According to Hari Wibawanto, (2016), Muhazir & Ismail (2012) and Gaidhani et al. (2019) propose here are some Gen Z learning styles.

- Learning by doing.

Experimental or practicing is more preferred than sitting in class only. Therefore, teachers must be more creative in teaching.

- Clear goals and fast feedback.

Before learning, Gen Z must know the topics will learn and the expected results of the learning activity.

- A tutor like a friend

Gen Z prefers and learns well if teachers can position themselves as their friends, teach in a personal approach, not too humiliating and not too intense to give a terrible impression.

- Focus on audio learning

For Gen Z, the part of the brain responsible for audio visual capabilities is far more advanced, so it is necessary to make visual forms of learning more interesting and effective and enjoyable.

- Learn through the gadget.

Technological devices such as smartphones are the most commonly used tools of Gen Z in support in the learning process. Average access duration can reach 15.4 hours per week. Through smartphones, they are not stuck with textbooks only so they can look for more information that can improve their learning process.

- Learn as a game.

Learning as a game will be more fun and effective. This game will motivate themselves to continue to push towards greater control of the subject matter.

- More critical thinking.

Gen Z is more likely to focus on critical thinking to be able to solve a problem rather than memorizing information. Therefore, in the process of learning they prefer and easier to understand the application of concrete concepts than to be instructed to memorize the formulas.

- Multitasking.

Gen Z includes a multitasking generation, that is, they can do a variety of tasks at a time. Do not be surprised if someone from the Gen Z can learn many things at once. They are able to use five different media simultaneously at a time. With this they tend to have a high level of creativity.

Therefore, several learning styles are often practiced by the Gen Z.

Research Methodology

The research methodology which comprise four phases including the Design Conceptual Study, Data collection, Quantitative empirical study; development of the guidelines based on the findings. This section explains the method of theoretical study to establish the research area and scope, identifying

constructs or attributes for questionnaire design, data collection, analysis and construction of the guidelines.

As for the data collection method, through purposive sampling, questionnaires will be distributed to 400 respondents at higher institution. The data collection in the empirical and exploratory study will be analyzed using appropriate statistical methods. Results of the analysis contributed to the achievement the stated objectives.

Evidence, findings and observations during the Design Conceptual Study, Data collection, and Quantitative empirical study were used as the basis for achieving the research objective to improvise smart education conceptual foundation of Gen Z.

Table 1. Research Methodology Approach

Input	Research Approach (process)	Results (Output)
Articles, Books, Journals, Conference Proceeding, Magazine, News, Online Database Journal, ISO Standards, Guidelines, Research Articles,	<ul style="list-style-type: none"> • Review related areas • Access online journal databases • Identify issues in the knowledge research areas • Design and distribute the questionnaire to respondents • Study and review the current quantitative data and qualitative approach will be applied to cross-validate findings (interview technique) 	<ul style="list-style-type: none"> • Literature review summary • Distribute the questionnaire to 400 respondents (students, instructors and administrators) • Provide statistical analysis based on data collection (from questionnaire)

Table 1 shows the research methodology approach which contain plan for conducting research. Sociologists draw on a variety of both qualitative and quantitative research methods, including distribute questionnaires, survey research, participant interviews, and secondary data. Quantitative methods aim to classify features, count them, and create statistical models to test hypotheses and objective. Qualitative methods aim for a complete, detailed description including the context of events and circumstances.

Conclusion

If the student's ability changes in the expected direction, learning is said to have been successful. The strategies and learning methods of the new generation are clearly different from those of the previous generation, including what the lecturers have experienced among the students. Gen Z

students are very fluent in using technology, and are always connected to the Internet. Every aspect of their daily life depends on information on the Internet. These characteristics have to be investigated and utilized optimally for the effectiveness of the learning process. The instructor does not need to be a technical expert to master all aspects of technology. Technology in learning is just a tool. Meanwhile new generation students need to admit that learning technology becomes smarter as they know the money and technology since entering kindergarten, the instructor does not need to teach the students how to use the technology. As a tool, technology will be able to improve quality, accelerate and streamline the learning process. However, technological changes in learning should not be revolutionized, but should be done in stages of transformational.

Future Work

This learning style driven by Gen z is also proposed to be tested in higher education institutions in developed and developing countries. Furthermore by creating new framework at higher educational institution, maybe can measure the increase in the learning process in higher education for Gen Z.

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