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Investigating Readiness of Virtual Classroom Environment (VCE) among Students

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ABSTRACT

Virtual classroom environment (VCE) is a platform for learners as it has the potential to increase learners' academic performance. The main objective of this paper is to investigate the readiness for VCE among students at a local university in Malaysia. A survey was conducted with 217 respondents. Questionnaires administered comprised sections on the demography of respondents and their readiness for virtual classroom and Technology Readiness Index 2.0 (TRI 2.0). The Kruskal-Wallis test was conducted in the data analysis. The dimensions of the Technology Readiness Index; (i) insecurity, (ii) discomfort, (iii) innovativeness , and (iv) optimism, were analysed. The results showed only the 'discomfort' dimension had a statistically different average total score between the three generation groups according to their age, namely; (i) Generation X (those born between 1965 and 1979); (ii) Generation Y (born between 1980 and 1994); and (iii) Generation Z (born in 1995 or later). The mean rank of total score for 'discomfort' shows that Generation X has the highest mean rank among the three generation groups. Thus, the results suggest future qualitative studies to unravel the 'discomfort' dimension for Generation X group.

Keywords*: virtual classroom environment (VCE); technology readiness index 2.0*

INTRODUCTION

Information and Communication Technology (ICT) is the visible symbol of globalisation and educational innovation (Power, 2007), that act as guidance for change and innovation in education (Clegg, Hudson & Steel, 2003). Advancement in technology has contributed to the growth in distance education preferred by adult learners (Subramaniam & Kandasamy, 2011) such as blended learning, e-learning and mobile learning and the interest in understanding mobile learning adoptions in Malaysia (Wan Mohd Isa, Mohd Lokman, Md Noor, Manggi & Mat Sah, 2015; Wan Mohd Isa, 2016).

Expectations and classroom needs of the millennials are different from the earlier generations of college students (Howe & Strauss, 2007). Millennials' virtual classroom learner-centered education fulfills their expectations and requirements and maximise their usage of learning in the digital environment (Subramaniam & Kandasamy, 2011). Virtual classroom environment (VCE) is an appropriate online learning mode in this century because this type of learning can be implemented anywhere and anytime. Some features of virtual classrooms include quizzes, examination, calendars (online), grading books (online) and help guides (online) (Subramaniam & Kandasamy, 2011). This study examines the level of readiness for VCE among three different generations of students at a local university in Malaysia.

There are two research questions:

1. What is the level of virtual classroom environment (VCE) readiness among students?

2. What are the recommendations to improve the readiness on virtual classroom environment (VCE) among students?

LITERATURE REVIEW

Virtual Classroom Environment

A virtual classroom is a teaching and learning environment situated within a computer-mediated communication system (Hiltz, 1994) that supports social interactions among its users.

Characteristics of Virtual Classroom Environment

There are several features of a virtual classroom environment (VCE) that will be discussed in this study. In a traditional physical classroom, instructors and students, physically interact while in a VCE virtual classroom they are virtually present (Nesson & Nesson, 2008) with, limited or no physical contacts with the fellow students. A virtual classroom differs from the face-to-face classes that include peer-based learning (Nesson & Nesson, 2008).

Technology Readiness Index

Technology Readiness Index (TRI) is a measurement of people's propensity to embrace and use new technologies for accomplishing goals in home life and at work (Parasuraman & Colby, 2015). There are four dimensions in TRI (Parasuraman & Colby, 2015):

i. Optimism: A positive view of technology and a belief that it offers people increased control, flexibility, and efficiency in their lives.
ii. Innovativeness: A tendency to be a technology pioneer and thought leader.
iii. Discomfort: A perceived lack of control over technology and a feeling of being overwhelmed by it.
iv. Insecurity: Distrust of technology, stemming from skepticism about its ability to work properly and concerns about the potential harmful consequences.

The technology readiness index (TRI) 2.0 (Parasuraman & Colby, 2015) is adopted in this study.

Age Generation Groups

In general, there are three different generation age groups, namely (i) generation X, (ii) generation Y, and (iii) Generation Z. 'Generation X' are those born between 1965 and 1979, 'Generation Y' are those born between 1980 and 1994 and 'Generation Z' are those born in 1995 or later (McCrindle, 2006). Generation Z can be defined as the 'Internet generation' or the 'network youths' (Ozkan & Solmaz, 2015) who are capable of communicating afar and can live and survive alone. They use the internet and mobile phones for all tasks, including school-work, socialisation, communication and entertainment (San-Martín, Prodanova & Jiménez, 2015).

RESEARCH METHOD

In this study, 290 questionnaires were distributed to students at a local university in Malaysia of which only 217 were returned and were valid and usable. The research had adopted the Technology Readiness Index 2.0 (A. Parasuraman and Rockbridge Associates, Inc., 2014) to measure technology readiness. Part A of the questionnaire pertains to the respondents' background information that includes gender, generation group, and respondents' readiness towards virtual classroom environment. Part B relates to the respondents' expository on virtual classroom while part C is on Technology Readiness.

RESULTS AND ANALYSIS

Descriptive Statistics

Gender of Respondents

Figure 1 presents the statistics of respondents by gender. Of the total respondents, 78.80 percent are female, and 21.20 percent are male.

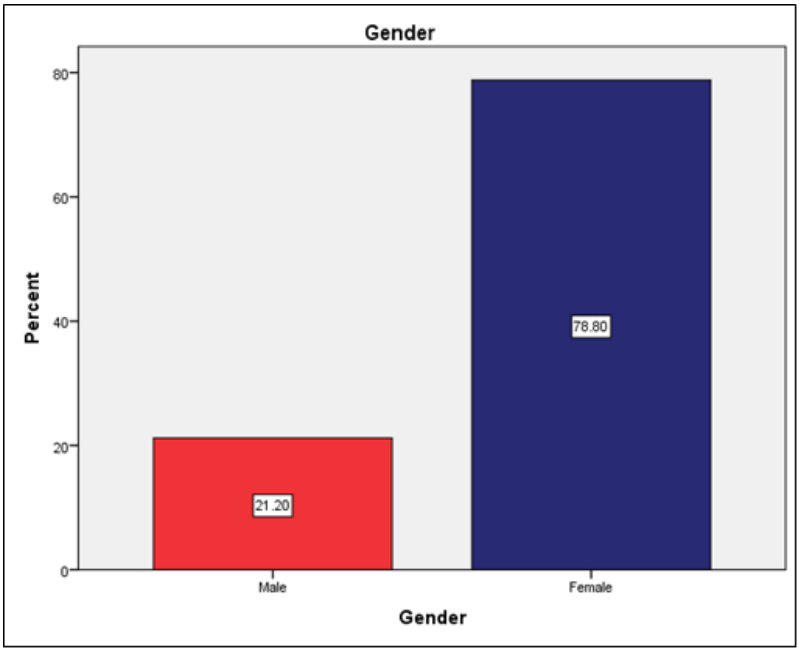

Figure 1: Gender of Respondents

Generation Groups of Respondents

Figure 2 shows the statistics of the generation groups. Majority of respondents are from Generation Y (92.63 percent). This is followed by Generation Z (4.608 percent) and Generation X (2.765 percent).

Readiness towards Virtual Classroom Environment

Figure 3 shows respondents' readiness for virtual classroom. Most of the respondents (81.11 percent) expressed readiness for virtual classrooms while 18.89 percent are not.

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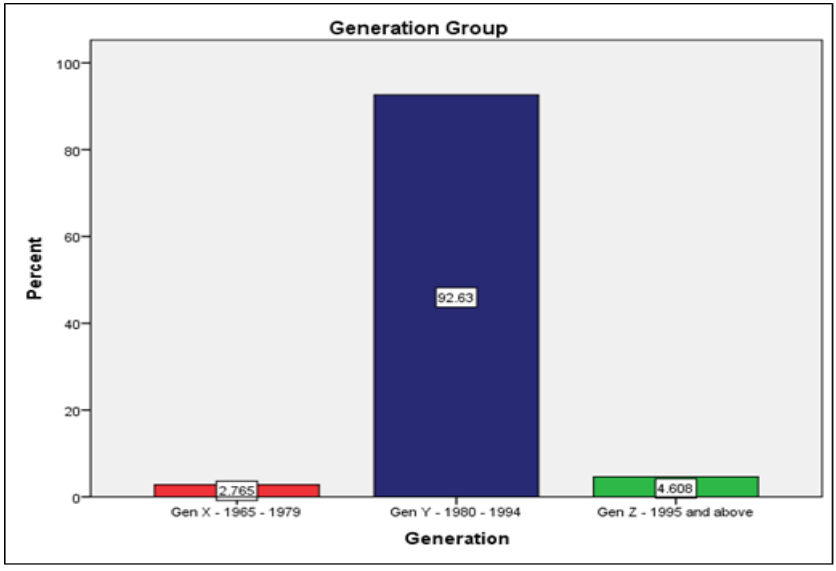

Figure 2: Generation Groups of Respondents

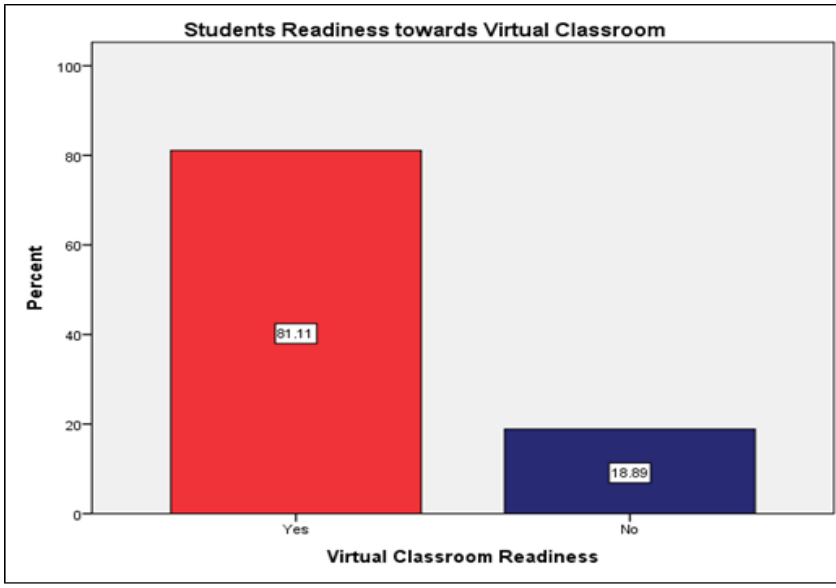

Figure 3: The Readiness towards Virtual Classroom Environment

Test of Reliability

Table 1 shows the reliability statistic in TRI dimensions. The inventory for all the items in the TRI dimensions was found to be highly reliable with Cronbach's alpha greater than 0.8: 'insecurity' (4 items; α = .863), 'optimism' (4 items; α = .859), 'innovativeness' (4 items; α = .856) and 'discomfort' (4 items; α = .856)

Table 1: Reliability Statistics in TRI Dimension

TRI Dimension	Cronbach's Alpha	Number of Items
Optimism	.859	4
Innovativeness	.856	4
Discomfort	.856	4
Insecurity	.863	4

Inferential Statistic

By using the Kolmogorov-Smirnov normality test, the data was found to be not normal. Thus, Kruskal-Wallis test was used as the non-parametric alternative for the one-way between-groups analysis variance.

Total Optimism Analysis:

RQ1: Is there enough evidence that on the average total score Optimism is different by generation (Generations X, Y and Z)?

The *P* value for optimism is .623. This is more than the significance (alpha) level of 0.05. It failed to reject the null hypothesis and the analysis cannot support the research hypothesis that the average mean rank for Optimism is different by generation groups.

Total Innovativeness Analysis:

RQ2: Is there enough evidence that on the average total score Innovativeness is different by generation (Generation X, Y and Z)?

The *P* value for Innovativeness is .783. This is more than the alpha level of 0.05. It failed to reject the null hypothesis and the analysis cannot support the research hypothesis that the average mean rank for innovativeness is different by generation groups?

Total Discomfort Analysis:

RQ3: Is there enough evidence that on the average total score Discomfort is different by generation (Generation X, Y and Z)?

The *P* value for Discomfort is .012. This is less than the alpha level of 0.05. Thus, there is a statistically significant variance in the discomfort score across the three groups Table 2 shows the mean rank for each generation and suggesting that Generation X – 1965-1979 has higher discomfort than Generation Y and Z – 1980 and over. Discomfort is defined as a perceived lack of control over technology and a feeling of being overwhelmed by it.

Table 2: Mean Rank in Discomfort

	Generation	N	Mean Rank
Total Discomfort	Generation X	6	168.58
	Generation Y	201	109.00
	Generation Z	10	73.35
	Total	217	

Total Insecurity Analysis:

RQ4: "Is there enough evidence that on the average total score Insecurity is different by generation (Generation X, Y and Z)?"

The *P* value for Insecurity is .376. This is more than the alpha level of 0.05. It failed to reject the null hypothesis and the analysis cannot support the research hypothesis that the average mean rank for insecurity is different by generation groups.

CONCLUSION

The main objective of this paper is to investigate the readiness of VCE among students at one local university in Malaysia. A survey was done with 217 respondents. The Kruskal-Wallis test was conducted in the data analysis. The dimensions of the Technology Readiness Index; (i) Insecurity, (ii) Discomfort , (iii) Innovativeness, and (iv) Optimism, were analysed. However, the results showed only 'discomfort' dimension was statistically different for the average total score by the three age generation groups; (i) generally born from 1965 to 1979 (Generation X), (ii) generally born from 1980 to 1994 (Generation Y) and (iii) generally born from 1995 and above (Generation Z). The mean rank for total score 'discomfort' shows that Generation X (generally born from 1965 to 1979) is the highest among the three age generations groups. Thus, the results suggest future qualitative studies to unravel the 'discomfort' dimensions reasons for Generation X group.

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