



Learning styles of Malaysian Generation 'Y' healthcare undergraduates[☆]



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Abstract

Objective: The learning styles of millennial students, also known as Generation 'Y', have been examined in the past to match the teaching style of an educator with the aim of improving behaviors, attitudes, and academic achievements. However, focus on Generation 'Y' healthcare undergraduates from a multi-cultural Asian society, is scarce and fragmented. Therefore, this research aims to identify the learning style preferences of Generation 'Y' undergraduates enrolled in varied healthcare programs at a Malaysian University.

Method: A quantitative cross-sectional study design was adopted. Honey and Mumford's Learning Style Questionnaire was used to explore the learning styles.

Results: The reflector learning style was most preferred by the Malaysian healthcare undergraduates, and no significant difference was found between the learning styles of the clinical group and the semi-clinical group.

Conclusions: Educators should engage Malaysian healthcare undergraduates in a non-threatening environment — Association between learning style and sociodemographic warrants further investigation.

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Introduction

Learning styles were developed to aid students in successfully learning knowledge and virtue. According to Honey and Mumford, a learning style is defined as a description of the attitudes and behaviors that determine an individual's preferred way of learning.¹ Many learning style models,

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such as Kolb's learning style model, Learning Modalities, and the Visual, Aural, Read, and Kinesthetic model, exist in the literature.² Kolb's Learning Style model, which was developed and released in 1976³ and after that adapted and improvised by Honey and Mumford in 1986,⁴ is one of the most popular models. Honey and Mumford's learning style model is known to be better suited for examining the learning styles of those in the healthcare sector.⁵

Honey and Mumford identified four learning styles: reflector, pragmatist, activist, and theorist.⁴ Those who use the reflector learning style are observers and engage in deep analysis and consideration before making any decision or action. Self-analysis paired discussion, and observing activities are preferred in this learning style. People who use the pragmatist learning style learn by trying out an assortment of ideas and techniques and look for the most effective result in their work of practice. Being practical, engaging in decision-making, and problem-solving are their preferred ways of learning. They are also labeled as 'down-to-earth'. Those who use the activist learning style are usually dominated by immediate experience and are interested in the 'here and now'. They tend to become the center of attention and are keen to initiate new challenges. Brainstorming, group discussion, role-playing, and being competitive are preferred. Lastly, people who use the theorist style adapt a rational and logical approach to solving problems while needing to plan and be clear about the purpose and goal of the problem. They are the least efficient in learning when activities are unstructured and ambiguous when emotion is emphasized, and when there is no clear purpose. Models, statistics, background information, quotes, and stories are preferred in their process of learning. Learning style was positively correlated with teaching style, and if the teaching style of an educator matches the learning style of a student, academic performance,⁶ behavior, and attitude toward learning enhances.⁷

Those born between the years 1981 and 2001 are labeled as Generation 'Y' or millennials.⁸ This generation has a specific learning style as they are more exposed to technology and rely heavily on it for communication and social networking.⁹ As such, educators are aware that they can no longer utilize the same instructional devices for millennials as they used to for students in the past.¹⁰ Previous research on the learning styles of Generation 'Y' were focused on the generic population of learners taking higher education.^{9,11} The latest systematic review¹² on the learning styles of Generation 'Y' undergraduates who were enrolled in healthcare courses showed that both culture and the type of course influence learning style. Therefore, the belief that students in different healthcare programs have the same learning style preference should be debunked. Most of the previous literature examining the learning style of Generation 'Y' were focused on the learners from the West,¹² with limited knowledge of Asian learners attending those healthcare courses.^{11,13} Due to the globalization of healthcare, patients and healthcare professionals travel around the world.¹⁴ Therefore, it is important to train and produce quality healthcare professionals who are knowledgeable, equipped with the necessary clinical and practical skills, and can provide the best patient care.¹⁴ This can only be possible when cultural differences are respected and taken into consideration while providing quality care.⁹ More so it is important to

understand how students from clinical (medicine, nursing, pharmacy, and dentistry) and semi-clinical groups (allied health science program) differ from each other.¹² To the best of our knowledge, no research has been conducted to explore the learning style preferences of undergraduates in the healthcare sector of Malaysia. Therefore, this research aimed to identify the learning style preferences of Generation 'Y' undergraduates in the clinical and sub-clinical healthcare programs at the International Islamic University Malaysia (IIUM), Kuantan.

Method

Study design and research questions

This research adopted a quantitative cross-sectional study design to answer the following questions:

- 1) What are the learning style preferences of undergraduates in varied healthcare programs at the IIUM?
- 2) Is there any difference in the learning styles of undergraduates from the clinical program and the semi-clinical program at the population level?
- 3) What is the relationship between sociodemographic variables and preferred learning styles?

The minimum required sample size was calculated using the Raosoft sample size calculator.¹⁵ The population size was set at 2000 as it was the total number of undergraduates in the healthcare programs at the study site. Based on a previous research,¹¹ response distribution was set at 50%, which would produce the largest sample size. The margin of error and confidence level were set at 5% and 95%, respectively. The calculated sample size was 325, which satisfied 80% power and validity.¹⁶

Participants

This research used the convenience sampling method to recruit participants. All the undergraduates from varied clinical healthcare programs (medical, nursing, pharmacy, and dentistry) and a sub-clinical program (allied health science) were approached, and information about the study was passed on by word-of-mouth to their friends of the same faculty. This method of recruitment was used until the sample size requirement of 325 was met.

Measures

Honey and Mumford's Learning Style Questionnaire (LSQ) (1986) was used for the collection and evaluation of the learning style preferences of undergraduates in this study. The LSQ consists of 80 closed-ended questions, presumed to measure the four learning styles: reflector, pragmatist, activist, and theorist.⁴ The validity of the instrument has been established as the instrument has been widely used in the previous research.¹⁷⁻¹⁹ A Cronbach's alpha of 0.74 for each learning style was achieved, which indicated good internal consistency.

Demographic and educational data such as gender, a program of study, and current academic year of study were also collected.

Data collection

Data were collected from February to May 2017. The method of data collection utilized technology, an online survey, as a platform for the ease of convenience to deter high dropout rates. Permission to use the questionnaire was obtained from one of the original developers of the instrument. The email addresses of all participants were obtained from the five academic offices of the following healthcare programs: Kulliyyah of Medicine, Kulliyyah of Pharmacy, Kulliyyah of Nursing, Kulliyyah of Dentistry, and Kulliyyah of Allied Health Science. The LSQ was created and posted on Google Docs, and the link of the questionnaire was sent to the participants via email for completion. The research purpose and aims were detailed at the start of the questionnaire. Voluntary written consent was given by all participants after the researcher explained the research purpose and aims via email and assured the participants that the data collected and their demographics would remain confidential. The average time for the participants to complete the questionnaire was between 15 and 20 min. Within a week after the questionnaire link was disseminated, participants were also reminded once through email to complete the questionnaire.

Data analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 23.0.²⁰ The data were analyzed and reported using descriptive statistics and chi-square test.

Ethical considerations

This research received ethics approval from the Kulliyyah of Nursing Postgraduate and Research Committee. Additionally, the IIUM's Research Ethical Committee reviewed and approved this research before the recruitment of participants.

Results

Characteristics of the sample

The sample consisted of 325 participants with diverse educational backgrounds from the IIUM, Kuantan. The undergraduates were 25.8% male and 74.2% female. All the students belonged to the Malay ethnic group (100%). One hundred and twenty-three participants were from the Kulliyyah of Medicine, 73 were from the Kulliyyah of Nursing, 46 were from the Kulliyyah of Pharmacy, 35 were from the Kulliyyah of Dentistry, and 48 were from the Kulliyyah of Allied Health Science. The number of students in their fourth academic year constituted the highest percentage of 37.8% in the sample. On the other hand, participants in their fifth academic year constituted the lowest percentage of 5.8%. A large proportion of the participants (81.2%) was receiving

Table 1 Sociodemographic data of the undergraduates.

Variable	<i>n</i>	%
<i>Gender</i>		
Male	84	25.8
Female	241	74.2
<i>Program</i>		
Medical	123	37.8
Nursing	73	22.5
Pharmacy	46	14.2
Dentist	35	10.8
Allied health science	48	14.8
<i>Academic year</i>		
1	68	20.9
2	60	18.5
3	55	16.9
4	123	37.8
5	19	5.8
<i>Financial assistant</i>		
Yes	264	81.2
No	61	18.8

financial assistance at the time of the study. Details of the sociodemographic results can be found in [Table 1](#).

Learning style preferences of the undergraduates

The majority of the undergraduates in the sample (66.2%) preferred to learn using the reflector learning style. The next preferred style of learning was the activist learning style (12.6%), followed by the theorist style (11.1%). The least preferred learning style was the pragmatist style (10.2%). Descriptive statistics of the learning style preferences of the Generation 'Y' undergraduates can be found in [Table 2](#).

Chi-square test was conducted to test for any differences in the learning styles of undergraduates from the clinical and semi-clinical programs at the population level. The result of the chi-square test ($\chi^2 = 2.7$, $p = 0.44$) showed that there was no significant difference between the learning styles of undergraduates in the clinical group and the semi-clinical group.

The relationship between sociodemographic variables and preferred learning style was also examined. As the p -value was more than the significant level of 0.05 for gender ($\chi^2 = 0.8$, $p = 0.85$), program ($\chi^2 = 7.6$, $p = 0.81$), year ($\chi^2 = 7.7$, $p = 0.81$), and financial aid ($\chi^2 = 5.1$, $p = 0.17$), there was no significant relationship between all sociodemographic variables and preferred learning style. The results of the chi-square test between sociodemographic variables and preferred learning style can be found in [Table 3](#).

Discussion

This research aimed to examine the preferred learning style of undergraduates who were enrolled in the healthcare programs of the IIUM, Kuantan, Malaysia. The preferred learning

Table 2 Learning style preferences of the Generation 'Y' undergraduates.

Learning style preference	Program (n)					Total (n) (%)
	Medic	Nursing	Pharmacy	Dentist	Allied health science	
Pragmatist	16	7	4	2	4	33 (10.2%)
Theorist	14	10	3	5	4	36 (11.1%)
Activist	15	10	7	6	3	41 (12.6%)
Reflector	78	46	32	22	37	215 (66.2%)
Total	123	73	46	35	48	325 (100.0%)

Table 3 Chi-square test between sociodemographic variables and learning style.

	Value, χ^2	df	p-value
<i>Pearson chi-square</i>			
Gender and LS [*]	0.8	3	0.85
Program and LS	7.6	12	0.81
Year and LS	7.7	12	0.81
Financial aid and LS	5.1	3	0.17

^{*} LS: learning style.

style of the Generation 'Y' undergraduates in this study were predominantly the reflector learning style, followed by the activist, theorist, and pragmatist learning styles. Similar to this study, the previous research^{6,21} among pharmacy and nursing students showed that, generally, students from healthcare courses prefer to engage in the reflector learning style in which they learn by observing, self-analysis, and listening before acting. According to Kolb,²² a professional career is one of the important factors that shape a person's style of learning. This seems to be logical as healthcare workers deal with patients' lives and having this careful attitude toward learning shows healthcare undergraduates' responsive disposition. This may also explain the least preferred learning style, pragmatist, in which learners enjoy experimenting with new ideas and techniques to see what works best.⁴

The reflector learning style is also considered a passive learning style in which learners prefer to be involved in the paired discussion, observation, and self-analysis in their processes of learning.⁴ This finding resonates with a previous research²² where comparisons between different cultural groups showed that Asian students tend to be passive learners. This could be further explained by the fact that Malaysia is a conservative Islamic society where educators are well-regarded by learners to the extent that questioning them is considered disrespectful.²³ Therefore, healthcare academia from the Asian context can integrate small group activities to foster a non-threatening, open discussion environment among students. Additionally, the use of technology, such as online discussion forums, emails, and WhatsApp chat groups, may help to break the fear of asking questions face-to-face among Asian healthcare learners and facilitators.²⁴

No difference was found in the learning styles of the clinical group (medicine, nursing, dentistry, and pharmacy) and the semi-clinical group (allied health science). As both

disciplines in healthcare ultimately deal with patient care, it is expected for learners from both groups to have a similar learning style. This finding echoes a previous research²⁵ where no difference was found between the education levels and the learning styles of residents from an internal medicine residency programme.

Lastly, this research found no statistically significant relationship between the sociodemographic variables (gender, a program of study, academic year of study, and financial aid) and the preferred learning style of the Generation 'Y' undergraduates. Previous research has shown different findings on this topic. Aziz²¹ found no significant association between the sociodemographic variables, such as gender and academic year, and the learning styles of the healthcare undergraduates. However, this was contradicted by Al BuAli et al.²⁶ and Mohammed et al.²⁷ where significant differences between the learning styles and gender as well as ethnicity were found. This warrants future studies to explore the relationship between sociodemographic variables and learning styles.

This research was conducted in a single setting; hence, the sample may not be representative of the entire Malaysian population. The sample consists of only Malay students, which is not representative of the population in the IIUM. Future studies can explore the relationship between ethnicity and learning styles using a representative sample.

Malaysian undergraduates in clinical and semi-clinical healthcare courses prefer the reflector (passive) learning style. This resonates with the cultural norms of the Malaysian society where educators are well-regarded and seldom questioned. As such, educators could engage their learners in a non-threatening environment, such as the use of electronic media. However, the effectiveness of different teaching methods needs to be evaluated. As inconclusive findings were found between the learning styles and sociodemographic variables of undergraduates, future research is warranted to understand this association.

Conflict of interests

The authors declare no conflict of interest.

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