

LEARNING STYLE PREFERENCES AMONG ONLINE DISTANCE LEARNING (e-PJJ) BACHELOR DEGREE STUDENTS IN FACULTY OF HEALTH SCIENCES UiTM PUNCAK ALAM

Siti Khuzaimah Ahmad Sharoni¹, Beinah Karim², NurJariyah Hamzah³

^{1,2,3}Faculty of Health Sciences, Universiti Teknologi MARA Selangor, Puncak Alam Campus, 42300 Puncak Alam, Selangor

¹sitik123@salam.uitm.edu.my; ²beinahkarim80@gmail.com; ³nurjariyah88@gmail.com

ABSTRACT

This study aimed to determine learning style preferences among online distance learning (e-PJJ) bachelor degree students in the Faculty of Health Sciences UiTM Puncak Alam and its' relationship with students' characteristic likes age, gender, marital status, program, semester, study hours per day, Cumulative Grade Points Average (CGPA) and number of days absent in class (last semester). Data collection is obtained from 201 e-PJJ students involved in five programs of Health Sciences. Gathered data was entered and analyzed by using the statistical package for the social science (SPSS) version 21 software. In this study, it is set out that perceptive is the most preferred learning style among e-PJJ students then followed by imaginative, analytic, solitary and competitive. Significant differences were found in competitive and imaginative learning styles with gender ($p < 0.05$). Competitive learning style and marital status, its' showed a significant difference ($p < 0.05$). Imaginative learning style showed a weak correlation with CGPA ($r_s = -0.140$, $p = 0.047$). The perceptive learning style also presented a weak correlation with study hours ($r_s = -0.159$, $p = 0.024$). In general, learning style preferences were influenced by students' characteristics. Therefore, it can be suggested that further comprehensive research is needed to understand the important factors that influenced learning style preferences among online distance learning (e-PJJ) students.

Keywords: flexible, student, learning, style, preference, Bachelor

INTRODUCTION

Learning interpreted as a continuous and lifelong process, and it will never be ending (Prabhakar Venogopal Gantasala & Swapna Bhargavi Gantasala, 2009). Over the years, the level of education in Malaysia is improving by the time being. Developments in science and technology are crucial factors that have positive impacts on the academic achievements of the students. In recent years, students were maximizing this opportunity to use online learning programs as their learning ways.

Funda Dag and Aynur Gecer (2009) defined that online learning commonly known as e-learning, virtual learning, tele-learning, distributed learning, web-based learning and distance teaching. Online learning programme is rapidly developing in educational institutions (Markova, Glazkova, & Zaborova, 2017). Students who used online learning can interact

among themselves and with the educators at the time of learning content delivery. This program gives a lot of benefits to students and makes the learning process going smoothly, and at the same time, they could perform better at work.

On the other hand, learning style can be described as a method chosen by the individual to receive, share and understand any information process (Pei-Jung, Shya, Ming-Hsia, & Ying-Tai, 2013). The learning process will be more interesting and precise if students can understand the knowledge using the most preferred learning style. Recent studies have shown that students should allow understanding their way of learning, enable them to identify the most suitable technique in learning style (Norasmah Othman & Mohd Hasril Amiruddin, 2010). Additionally, there is a correlation between learning style and the learning outcome (Aranya Srijongjai, 2011). Other than that, learning style preferences influenced by many factors, such as students' characteristics. In this study, five out of eight students' characteristics are equal to Ukpong and George (2013), which are age, gender, marital status, semester and study hours per day.

LITERATURE REVIEW

Distance learning in higher education is not a new phenomenon, and it is definitely to gain knowledge so that they can upgrade the level of education. Distance learning students will learn to be independent because it is a lack of physical presence and will contributing to less natural learning (Martzoukou & Kemp, 2016). For example, distance learning programs in the Institute of Education Development (iNED) Universiti Teknologi MARA (UiTM) use i-Class for off learning campus programs (Marliana Baharudin, Fattawi Mokhtar, Roslina Ahmed Tajuddin, & Norshidah Nordin, 2013). These programs allow students to access learning material and communicate with peers and educators effectively.

According to recent reports by Ivana Simonova and Petra Poulouva (2017), the number of educational institutions that using online learning was increasing since 2002. This is a good achievement in the educational field, especially for distance learning students. Students will maximize the benefits of using this online as a way for educational purposes. Working students are independent students that might be selecting online learning as their way of enhancing their knowledge (Yu-Chih Doris, Yu-Ching, & Claudia, 2013). In a tertiary institution, the knowledge in internet usage gave some positive and incredible impacts on online distance learning because all information can be assessed easily and quickly.

The previous study that has been conducted by Abdolghani Abdollahimohammad and Rogayah Ja'afar, (2014) clarified that learning style had five components that can be labelled as perceptive, analytic, imaginative, competitive, and solitary. Perceptive learning style will learn better by using pictorial information and actively being part of the practical task. They are likes to add teaching material methods in their learning processes such as PowerPoint and demonstration. They learn better in using multimedia learning because of the delivery of information is easier via the senses (Abdolghani Abdollahimohammad & Rogayah Ja'afar, 2014).

Then, for analytic students, they preferred taking notes in a learning situation because this kind of student who is more specific to get detail information. They are always enthusiastic and curiosity about their learning process. For imaginative students, they like to create a mental picture. They will create a mental picture of what they are sensed by observing and listening. This technique will help them understand more about their lessons.

Meanwhile, competitive students learn more effectively by competing with other students and if they felt challenged. Competitive students have motivated that obtained by

external sources like peers, educators, and parents. Besides, they will be more passionate if they had appreciated and rewarded by educators and parents. After that, students who are preferred to study alone known as solitary students. Solitary students are independent of getting new information. They can do the assignments and manage study plans independently. Solitary students considered being in a quiet place for a better learning process.

OBJECTIVES OF THE STUDY

The objectives of this study were to identify the learning style preferences and their association between students' characteristics among online distance learning (e-PJJ) bachelor degree students in the Faculty of Health Sciences UiTM Puncak Alam.

METHODOLOGY

Subjects

This is a Quantitative, Cross-sectional study that was conducted in March 2019 at the Faculty of Health Sciences UiTM Puncak Alam, Selangor, Malaysia. The questionnaires were distributed to 201 e-PJJ students that involved in five programs of Health Sciences which is Bachelor of Nursing (Hons), Bachelor of Medical Imaging (Hons), Bachelor of Environmental Health (Hons), Bachelor of Physiotherapy (Hons) and Bachelor of Occupational Therapy (Hons). The full-time students from UiTM Puncak Alam were excluded because they are enrolled for full-time studies.

Instruments

The questionnaire is from Learning Style Scale that was adopted from Abdolghani Abdollahimohammad and Rogayah Jaafar (2014). The scale focused on items on students' preferred learning styles, consisting of 22 items that include learning styles that students normally employed within their learning style preferences. This included perceptive (seven items), solitary (four items), analytic (four items), competitive (three items), and imaginative (four items) learning styles. All these items were measured using a Likert Scale that divided into six categories which are (1) strongly agree, (2) moderately agree, (3) agree a little, (4) disagree a little, (5) moderately disagree, and (6) strongly disagree. In this study, the lowest score of the Likert Scale indicate the most preferred learning style preferences by respondents.

The UiTM Ethics Committee approved the approval of the ethical consideration for this study (600-IRMI (5/1/6) and Director of the Institute of Neo Education (iNED) (No. RQM: 341).

Statistics

The data were analyzed using the statistical package for the social science (SPSS) version 21 software. Students' characteristics and learning style preferences components were sorted and presented using descriptive statistics. The normality of distributions was assessed using the Kolmogorov-Smirnov test and supported by the histogram. The data was not normally

distributed, which p-value is <0.05 for all learning style preferences components. Therefore, non-parametric tests such as the Mann-Whitney test, Kruskal-Wallis test and Spearman correlation were used to analyses the relationship between the learning style preferences and students' characteristics (Zulfiqar Ali & Bhaskar, 2016).

The reliability of the Learning Style Scale is 0.950, which was tested using Cronbach's alpha. It can be described as an excellent result as stated by Montshiwa and Moroke (2014).

RESULT

Table 1 shows the mean and standard deviations of the five categories of learning style. Perceptive learning style had the lowest mean value of 1.991 (SD=0.628), while the response to competitive learning style had the highest mean score of 2.657 (SD=1.213). It was implied that the majority of e-PJJ students in this study considered themselves perceptive types instead of competitive learning styles.

A Mann-Whitney test was conducted to find the association between learning style preferences and gender. The results indicate that the learning style in the male group was statistically significantly differed from the female group, which were competitive ($p=0.007$) and imaginative ($p=0.011$) (Table 2). Table 3 shows no statistically significant difference for all learning styles with the number of days absent in class for last semester ($p>0.05$). Then, for the association between learning style preferences with marital status, it revealed that there were significant differences in competitive learning style ($p=0.010$) (Table 4). The Kruskal-Wallis test was used to determine the association between learning style preferences with the programme, and the results indicate that there was no statistically significant difference ($p>0.05$). Meanwhile, Spearman's rank-order correlation was run to determine the association between learning style preferences with age, semester, study hours per day and Cumulative Grade point average (CGPA). The table 5 shows, there was a weak negative correlation between an imaginative group with CGPA ($r_s=0.140$, $p=0.047$), and perceptive group with study hours ($r_s=0.159$, $p=0.024$). Other learning style preferences showed there were no statistically significant ($p>0.05$).

Table 1: Mean and Standard Deviation of Learning Style Preferences (by Category) (N=201)

| Learning Style | Mean | SD |
|----------------|-------|-------|
| Perceptive | 1.991 | 0.628 |
| Imaginative | 2.165 | 0.710 |
| Analytic | 2.333 | 0.634 |
| Solitary | 2.389 | 0.537 |
| Competitive | 2.657 | 1.213 |

Table 2: The Differences between Learning Style Preferences and Gender (N=201)

| Learning Style | Group | N | Median(±IQR) | Z | p-value |
|----------------|--------|-----|--------------|--------|---------|
| Solitary | Male | 77 | 2.25(0.75) | -0.973 | 0.330 |
| | Female | 124 | 2.50(0.75) | | |

| | | | | | |
|-------------|--------|-----|------------|--------|--------|
| Competitive | Male | 77 | 2.33(1.33) | -2.708 | 0.007* |
| | Female | 124 | 2.67(1.33) | | |
| Imaginative | Male | 77 | 2.00(1.00) | -2.543 | 0.011* |
| | Female | 124 | 2.25(1.00) | | |
| Perceptive | Male | 77 | 1.71(0.64) | -1.949 | 0.051 |
| | Female | 124 | 2.00(1.07) | | |
| Analytic | Male | 77 | 2.25(0.88) | -0.831 | 0.406 |
| | Female | 124 | 2.25(0.75) | | |

Note: IQR = Interquartile Range, * $p < 0.05$

Table 3: The Differences between Learning Style Preferences and Number of Days Absent in Class (last semester) (N=201)

| Learning Style | Group | N | Median(\pm IQR) | Z | p-value |
|----------------|----------|-----|--------------------|--------|---------|
| Solitary | 0 | 175 | 2.50(0.75) | -0.190 | 0.850 |
| | ≥ 1 | 26 | 2.50(1.00) | | |
| Competitive | 0 | 175 | 2.33(1.00) | -1.196 | 0.232 |
| | ≥ 1 | 26 | 2.83(1.42) | | |
| Imaginative | 0 | 175 | 2.00(1.00) | -0.717 | 0.473 |
| | ≥ 1 | 26 | 2.00(0.88) | | |
| Perceptive | 0 | 175 | 2.00(0.86) | -0.875 | 0.381 |
| | ≥ 1 | 26 | 2.00(1.18) | | |
| Analytic | 0 | 175 | 2.25(0.75) | -0.577 | 0.564 |
| | ≥ 1 | 26 | 2.25(1.00) | | |

Note: IQR = Interquartile Range

Table 4: The Differences between Learning Style Preferences and Marital Status (N=201)

| Learning Style | Group | N | Median(\pm IQR) | Z | p-value |
|----------------|---------|-----|--------------------|--------|---------|
| Solitary | Single | 99 | 2.50(0.75) | -0.631 | 0.528 |
| | Married | 102 | 2.25(0.75) | | |
| Competitive | Single | 99 | 2.67(1.33) | -2.572 | 0.010* |
| | Married | 102 | 2.33(1.00) | | |
| Imaginative | Single | 99 | 2.25(1.00) | -0.710 | 0.478 |
| | Married | 102 | 2.00(1.25) | | |
| Perceptive | Single | 99 | 2.00(0.86) | -0.837 | 0.403 |
| | Married | 102 | 1.93(0.86) | | |
| Analytic | Single | 99 | 2.50(1.00) | -1.575 | 0.115 |
| | Married | 102 | 2.25(0.75) | | |

Note: IQR = Interquartile Range, * $p < 0.05$

Table 5: The Association between Learning Style Preferences with Age, Semester, Study Hours per Day and CGPA (N=201)

| Learning styles | Age (r_s, p) | Semester (r_s, p) | Study Hours (r_s, p) | CGPA (r_s, p) |
|-----------------|------------------|-----------------------|--------------------------|-------------------|
| Solitary | (0.005, 0.945) | (0.008, 0.913) | (-0.127, 0.073) | (0.006, 0.929) |

| | | | | |
|-------------|--------------------|--------------------|---------------------|---------------------|
| Competitive | (-0.060, 0.395) | (0.109, 0.125) | (-0.089, 0.207) | (-0.056, 0.427) |
| Imaginative | (0.000, 0.998) | (0.004, 0.952) | (-0.087, 0.221) | (-0.140*, 0.047) |
| Perceptive | (0.031, 0.661) | (0.055, 0.435) | (-0.159*, 0.024) | (-0.074, 0.295) |
| Analytic | (-0.057, 0.422) | (-0.026, 0.716) | (-0.073, 0.302) | (-0.115, 0.103) |

Note: * $p < 0.05$

DISCUSSIONS

This study presents the Learning Style preferred by online distance learning student (e-PJJ) students and their relationship with students' characteristics. The result revealed that perceptive is the most preferred learning style among e-PJJ students in the Faculty of Health Sciences UiTM Puncak Alam. Perceptive is a learning style that related to practical field and demonstration (Abdolghani Abdollahimohammad & Rogayah Ja'afar, 2014). Health Sciences program is more related to the practical session. Therefore, the clinical posting is crucial in sharpening students' skills in health science fields. This result is similar to previous researched that conducted by Abdolghani Abdollahimohammad and Rogayah Ja'afar, (2014) that clarified perceptive is preferred learning style among nursing students in Iran. Other than that, this study emphasized that competition is not an option among e-PJJ students. The e-PJJ students do not compete in getting the highest score instead of they are preferred to observe during the learning process.

According to the findings of the study for gender, the result appeared that significant results with a competitive learning style. It is showed that male students are more competitive than female students. This outcome is contrary to Siti Hajar Halili, Zahra Naimie, Saedah Siraj, Rana AhmedAbuzaid, and Chin Hai Leng, (2014) that stated the competitive learning style were dominant to the female student rather than male. Female students are more enthusiastic about competing in their studies to achieve an excellent result. The competitive students are enjoying their study and will be competing with the other students to get a better result (Abdolghani Abdollahimohammad & Rogayah Ja'afar, 2014). The finding for the differences between competitive learning style and marital status showed that there are significant. It is supported by Fatemeh Vizeshfir and Camellia Torabizadeh, (2018) that it is significant between learning style and marital status. The current study found that married students are more competitive. A possible explanation for this might be that married students enjoy competing because it was motivated by external factors like's peers, educators, and family (Abdolghani Abdollahimohammad & Rogayah Ja'afar, 2014). Moral support and cooperation from them make e-PJJ students are able to focus on their objective in studying and subsequently, makes them score better in the academic. In contrast, the finding revealed that there is no significant between competitive and number of days absent in class for last semester, program, age, semester, study hours and CGPA.

For imaginative learning styles, these results were confirmed the significant association with gender. The result presented that male students more imaginative rather than female students. This is a new finding because, until now, to the best of our knowledge, no data was found on the association between imaginative and gender. The imaginative students are like to create a mental picture for what they hear, read, saw and study. They believe that this method of learning will enhance their understanding of the learning process. Another important finding in this study was that learning style preferences appeared prominent in imaginative components

related to CGPA results. The result indicates that there is a weak correlation between imaginative learning styles with CGPA results. The imaginative students can focus on details on the subject due to their brain capability to integrate the left and right brain function at once (Abdolghani Abdollahimohammad & Rogayah Ja'afar, 2014). Besides, students are creating an imaginative mind to reflect in their learning process for better understanding. However, this study identified that there is no significant between imaginative and number of days absent in class for last semester, marital status, program, age, semester and study hours. This might be the lack of students' stimulation of imagination through being critical thinking in problem-solving.

For a perceptive learning style, it was showed a weak correlation with study hours. This result has not previously been described. These relationships may partly be explained by the perceptive students gain the knowledge through the PowerPoint and involving in practical and demonstration. Subsequently, they are actively participating in the task, which is involved in education teaching and a clinical session. Other than that, no significant difference was found between perceptive and gender, several days absent in class for last semester, marital status, program, age, semester and CGPA. This is dissimilarity with the finding of Abdolghani Abdollahimohammad and Rogayah Ja'afar, (2014) that was mentioned the nursing program in Iran preferred the perceptive learning style. The perceptive learning style more related to observational learning and it will gain the experience immediately.

The result of this study indicates that there is no significant difference was found between solitary and all students' characteristics, which were gender, several days absent in class for last semester, marital status, program, age, semester, study hours, and CGPA. It seems possible that these results are due to e-PJJ students are very independent in getting the source of information about their learning. Meanwhile, based on research findings, there is no significant difference found between analytic and all students' characteristics. In contrast, based on Abdolghani Abdollahimohammad and Rogayah Ja'afar, (2014), were found that nursing students in Universiti Sains Malaysia are more preferred in analytic as their learning style preferences. For analytic nursing students, they are more details in remember their learning approaches (Abdolghani Abdollahimohammad & Rogayah Ja'afar, 2014). This might be related to nursing students to have a comprehensive exam in evaluating their understanding of the subject.

CONCLUSION

This study attempted to determine the association between learning style preferences and students' characteristics among online distance learning (e-PJJ) bachelor degree students in the Faculty of Health Sciences UiTM Puncak Alam. Through this study, the preferred learning style among e-PJJ students was identified and the relationship between learning style preferences and students' characteristics also been sorted out clearly. In general, learning style preferences were influenced by students' characteristics. Therefore, it can be suggested that further comprehensive research is needed to understand the important factors that influenced learning style preferences among online distance learning (e-PJJ) students. In a conclusion, hopefully, this study will become a good reference to students who not only intend to online distance learning but also involve in the online distance learning itself.

REFERENCES

- Abdolghani Abdollahimohammad, & Rogayah Ja'afar. (2014). Learning style preferences of nursing students at two universities in Iran and Malaysia. *Journal of Educational Evaluation for Health Professions*, 11, 30. <https://doi.org/10.3352/jeehp.2014.11.30>
- Abdolghani Abdollahimohammad, & Rogayah Jaafar. (2014). Learning Style Scale: a valid and reliable questionnaire. *Journal of Educational Evaluation for Health Professions*, 5.
- Aranya Srijongjai. (2011). Learning styles of language learners in an EFL writing class. *Procedia - Social and Behavioral Sciences*, 29, 1555–1560. <https://doi.org/10.1016/j.sbspro.2011.11.397>
- Fatemeh Vizeshfir, & Camellia Torabizadeh. (2018). The effect of teaching based on dominant learning style on nursing students' academic achievement. *Nurse Education in Practice*, 28(October 2017), 103–108. <https://doi.org/10.1016/j.nepr.2017.10.013>
- Funda Dag, & Aynur Gecer. (2009). Relations between online learning and learning styles. *Procedia - Social and Behavioral Sciences*, 1(1), 862–871. <https://doi.org/10.1016/j.sbspro.2009.01.155>
- Ivana Simonova, & Petra Poulouva. (2017). Learners Preferences in Mobile-Assisted Higher Education. *Procedia Computer Science*, 104(December 2016), 174–182. <https://doi.org/10.1016/j.procs.2017.01.099>
- Markova, T., Glazkova, I., & Zaborova, E. (2017). Quality Issues of Online Distance Learning. *Procedia - Social and Behavioral Sciences*, 237(June 2016), 685–691. <https://doi.org/10.1016/j.sbspro.2017.02.043>
- Marliana Baharudin, Fattawi Mokhtar, Roslina Ahmed Tajuddin, & Norshidah Nordin. (2013). Adult Learners' Satisfaction toward Using I-Class System: UiTM Experiences. *Procedia - Social and Behavioral Sciences*, 90(InCULT 2012), 313–318. <https://doi.org/10.1016/j.sbspro.2013.07.096>
- Martzoukou, K., & Kemp, V. (2016). Nurturing supportive and engaging induction environments for distance-learning students. *Procedia - Social and Behavioral Sciences*, 228(June), 535–540. <https://doi.org/10.1016/j.sbspro.2016.07.082>
- Montshiwa, V. T., & Moroke, N. D. (2014). Assessment of the Reliability and Validity of Student-Lecturer Evaluation Questionnaire: A Case of North West University. *Mediterranean Journal of Social Sciences*, 5(14), 352–364. <https://doi.org/10.5901/mjss.2014.v5n14p352>
- Norasmah Othman, & Mohd Hasril Amiruddin. (2010). Different Perspectives of Learning Styles from VARK model. *Procedia - Social and Behavioral Sciences*, 7(2), 652–660. <https://doi.org/10.1016/j.sbspro.2010.10.088>
- Pei-Jung, W., Shya, L. W., Ming-Hsia, H., & Ying-Tai, W. (2013). Learning styles of undergraduate and graduate physical therapy students in Taiwan. *Procedia - Social and Behavioral Sciences*, 93, 1254–1258. <https://doi.org/10.1016/j.sbspro.2013.10.024>
- Prabhakar Venogopal Gantasala, & Swapna Bhargavi Gantasala. (2009). Influence of Learning Styles. *International Journal of Learning*, 16(9), 169–184. <https://doi.org/10.18848/1447-9494/CGP/v16i09/46612>

- Siti Hajar Halili, Zahra Naimie, Saedah Siraj, Rana AhmedAbuzaid, & Chin Hai Leng. (2014). Learning Styles and Gender Differences of USM Distance Learners. *Procedia - Social and Behavioral Sciences*, 141, 1369–1372. <https://doi.org/10.1016/j.sbspro.2014.05.236>
- Ukpong, & George. (2013). Length of Study-Time Behaviour and Academic Achievement of Social Studies Education Students in the University of Uyo. *International Education Studies*, 6(3), 172–178. <https://doi.org/10.5539/ies.v6n3p172>
- Yu-Chih Doris, Yu-Ching, & Claudia. (2013). Online Learning Styles Preferences: An Analysis on Taiwanese and USA Learners. *The Turkish Online Journal of Educational Technology*, 12(4).
- Zulfiqar Ali, & Bhaskar. (2016). Basic statistical tools in research and data analysis. *Indian Journal of Anaesthesia*, 60(9), 662–669. <https://doi.org/10.4103/0019-5049.190623>