



AENSI Journals

Journal of Applied Science and Agriculture

ISSN 1816-9112

Journal home page: www.aensiweb.com/JASA



Students' Perceptions towards the Usage of Online Multiple Intelligences Teaching Tools in Learning Programming

¹Siti Nurul Mahfuzah Mohamad, ¹Sazilah Salam, ¹Norasiken Bakar, ²Nordin Abd. Razak, ³Linda Khoo Mei Sui

¹Universiti Teknikal Malaysia Melaka (UTeM), Faculty of Information and Communication Technology, Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia.

²Universiti Sains Malaysia (USM), School of Education, 11800 USM, Pulau Pinang, Malaysia.

³Universiti Teknikal Malaysia Melaka (UTeM), Centre for Languages and Human Development, Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia.

ARTICLE INFO

Article history:

Received 25 June 2014

Received in revised form

8 July 2014

Accepted 10 August May 2014

Available online 30 August 2014

Keywords:

Multiple Intelligences, Programming
E-learning, Interpersonal, Visual-
Spatial, Verbal-Linguistic

ABSTRACT

Background: The theories of Multiple Intelligence (MI) used in this paper apply to students with interpersonal, visual-spatial and verbal-linguistic intelligences. In this context, students will learn better if they know and use their intelligence. Lecturers play an important role in planning the teaching and learning activities in order to meet the needs of intelligence, which consist of the nine intelligences that introduced by Gardner. **Objective:** The objective of this paper is to analyze the perceptions and attitudes towards the usage of Online Multiple Intelligence Teaching Tools (On-MITT) in learning programming. **Results:** A total of 36 students from Politeknik Merlimau Melaka (PMM) responded to the survey. Learning Questionnaire is used as the instrument to measure the ease of use and usefulness towards the usage of On-MITT in learning programming. Based on the findings, the On-MITT can enhance learning in programming subject. **Conclusion:** It can be concluded that On-MITT can motivate students to use online learning in class. Adding others type of intelligence in On-MITT should be developed in order to achieve an effective teaching and learning process.

© 2014 AENSI Publisher All rights reserved.

To Cite This Article: Siti Nurul Mahfuzah Mohamad, Sazilah Salam, Norasiken Bakar, Nordin Abd. Razak, Linda Khoo Mei Sui, Students' Perceptions Towards the Usage of Online Multiple Intelligences Teaching Tools in Learning Programming. *J. Appl. Sci. & Agric.*, 9(11): 49-52, 2014

INTRODUCTION

Using e-learning as a teaching and learning method is not something new in the world of education especially at polytechnics. According to Embi and Adun (2010), e-learning refers to teaching and learning through the application of Information and Communication Technology (ICT). Using e-learning, lecturers can manage their teaching activities and share with students while students can access and download the materials at anytime and anywhere. Certainly, using e-learning, teaching and learning will be easier, faster, accurate and interesting.

In this paper, the theory of Multiple Intelligences (MI) are used in developing an Online Multiple Intelligence Teaching Tools (On-MITT). MI is an educational theory that is often used in teaching and learning activities. This theory states that every students has its own intelligence either one or more intelligences. On-MITT is a web-based application which provides varieties of teaching tools that provides teaching activities to enhance interpersonal (IN), visual-spatial (VS) and verbal-linguistic (VL) learner. In classroom, lecturers play an important role in planning the teaching and learning activities in order to meet the needs of intelligence, which consist of the nine intelligences that introduced by Gardner (2006).

At Malaysia Polytechnic, programming subject is the compulsory subject which is all students from Information Technology (IT) or Electrical department must pass this subject. However, teaching programming subject is too complex that requires students to understand the concepts, logical thinking as well as problem solving. A study conducted by Alis and Zarina (2007) found that students have difficulties in understanding the explanation by lecturer in classroom, could not complete the programming tutorial, lack of foundation, lack of reading other reference books, and duplicate the work from a friend. The authors also mentioned that this issue is due to the method of teaching used by lecturers. The problem is supported by a study conducted by Derus and Ahmad (2012) involving 105 students from the department of electrical engineering, which also took the subject

Corresponding Author: Siti Nurul Mahfuzah Mohamad, Universiti Teknikal Malaysia Melaka (UTeM), Faculty of Information and Communication Technology, Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia
Ph: +6013-3808211 E-mail: fuza1112@yahoo.com

programming. The authors mentioned that students faced difficulties in understanding the basic concept of programming structure and designing a program to solve certain tasks. Takemura, Hideo and Naoya (2012) stated that teaching programming is not an easy task especially when teaching to non-computing majors because their motivation to learn programming is not as strong as computing majors.

Therefore, an On-MITT is developed to help lecturer and students in teaching and learning process. This paper only develops an On-MITT that supports MI activities and tasks for technical education students. The teaching activities were limited to IN, VS and VL only.

MATERIALS AND METHODS

On-MITT provides three main modules: IN, VS and VL. There are three activities in the IN module. The first activity is the collaborative learning using jigsaw. The second activity is online whiteboard and the third activity is online sticky notes. In VS module, there are interactive diagram generator, presentation tools and mind map maker while VL module provides word game maker, quiz maker and word cloud maker. All these activities are available in the web environment and can be described in figure 1 below.

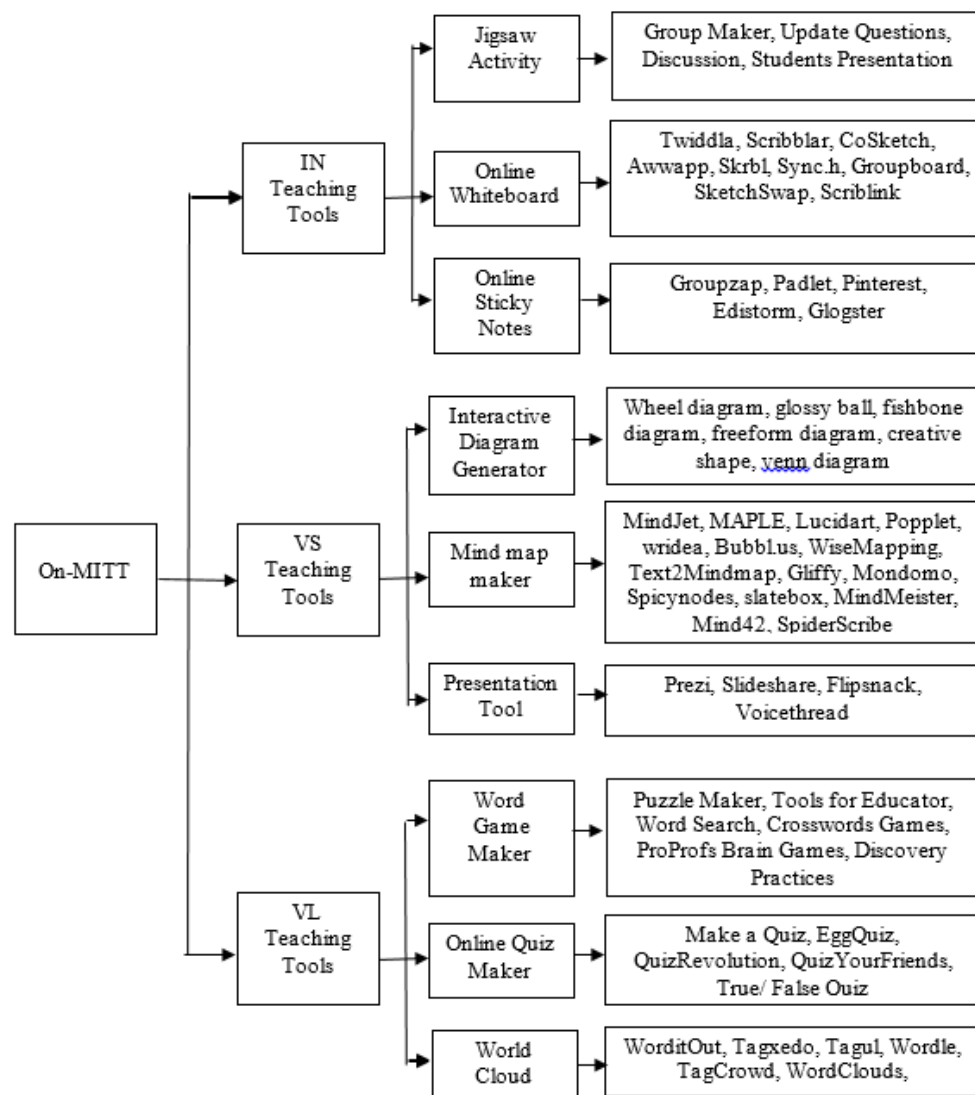


Fig. 1: On-MITT Teaching and Learning Activities.

Figure 2 illustrated the system architecture for student module while figure 3 illustrated the system architecture for educator module.

Results:

In order to measure students' perceptions when using On-MITT, learning questionnaire was adapted. The questionnaire consists of 15 questions covering Ease of Use (8 items) and Usefulness (7 items). Each item

consists of Five point Likert –type response options. These options were coded 1 for ‘Strongly Disagree’, 2 for ‘Disagree’, 3 for ‘No opinion’, 4 for ‘Agree’ and 5 for ‘Strongly Agree’. An evaluation of On-MITT has been completed by 36 students of Politeknik Merlimau Melaka.

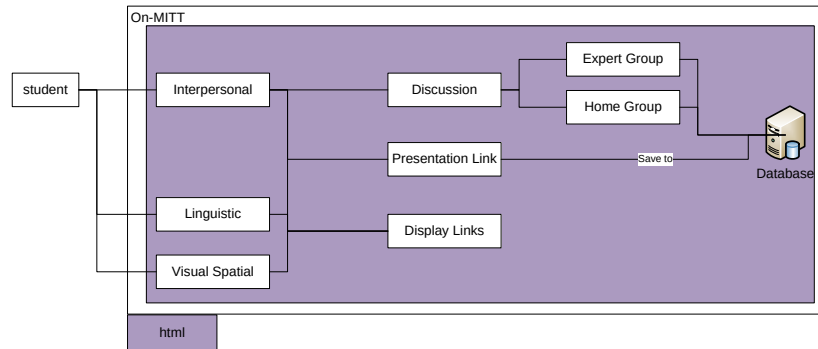


Fig. 2: Student Module.

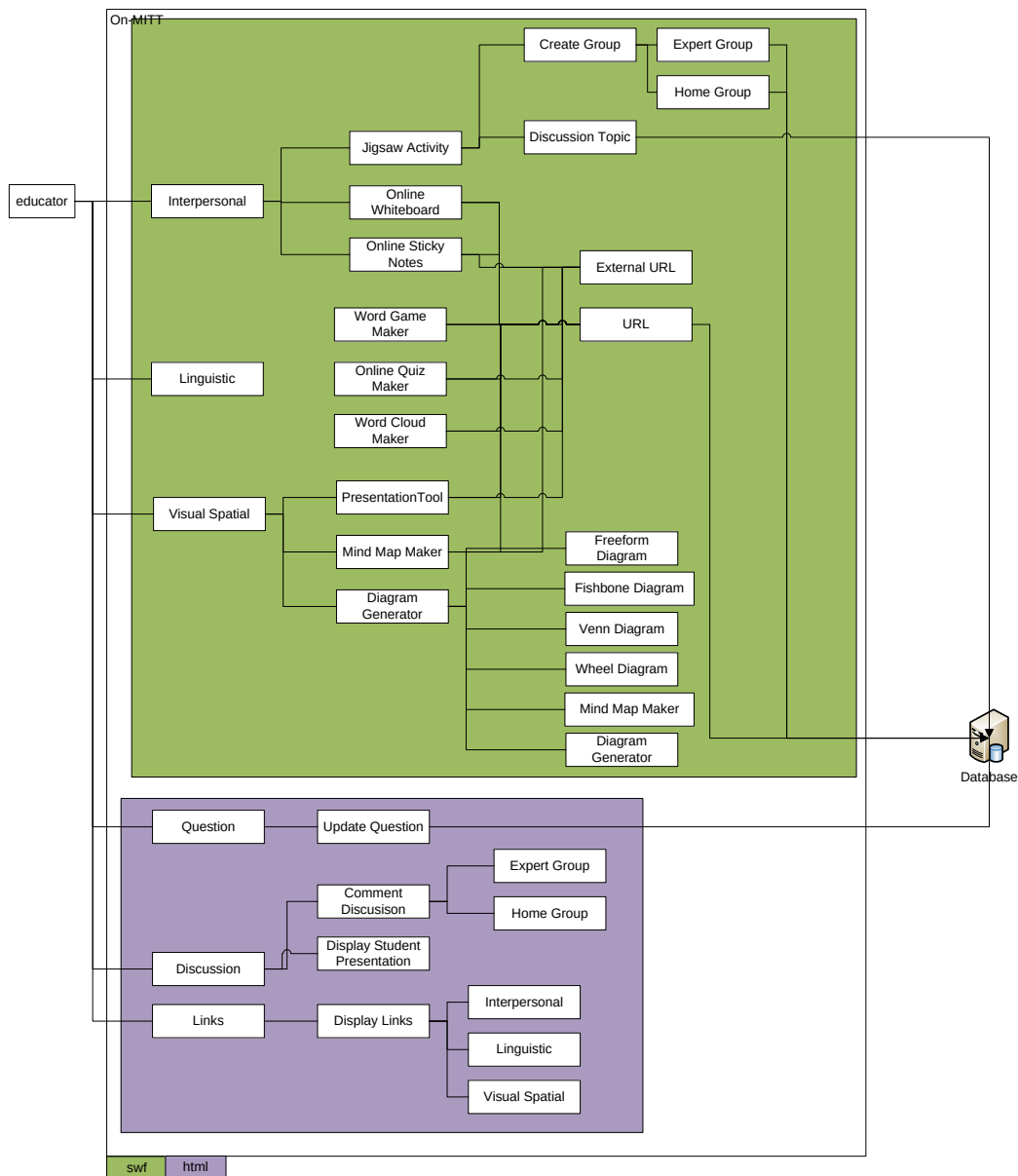


Fig. 3: Educator Module.

Table 1 showed the mean ranged from 4.11 to 4.47. Item 3 possessed the highest mean value whereas the mean value was 4.47. Analysis shows that most of the students agreed that they enjoy learning in group. Students also agreed that the teaching materials that provided in On-MITT is very interesting to learn (mean=4.39).

Table 1: Perceived Usefulness.

No	Usefulness	Mean	SD
1	Delivering the lessons in teaching aids are easy to follow	4.11	0.71
2	Teaching material produced by the lecturers use the appropriate color background	4.28	0.61
3	I enjoy learning in group	4.47	0.61
4	The teaching materials is very interesting to learn	4.39	0.6
5	I easily understand the concepts	4.25	0.73
6	The teaching materials provided by lecturers are easy to understand	4.25	0.69
7	Interesting learning activities using the template provided	4.19	0.86
8	A variety of teaching activities make me interest to learn	4.39	0.69

Table 2 showed the analysis of perceived ease of use. Analysis showed the most of the students agreed that learning with On-MITT was easy for them and the text use is easy to read with highest mean value was 4.47.

Table 2: Perceived Ease of Use.

No	Usefulness	Mean	SD
1	Learning to use the On-MITT is easy for me	4.47	0.65
2	Text that use is easy to read	4.47	0.61
3	The learning material is equipped with interactive graphics	4.44	0.61
4	The template used by lecturer is suitable for me	4.28	0.70
5	I easy to remember using interactive diagram	4.28	0.78
6	I love to use mind map in my class	4.39	0.69
7	I enjoy learning using all the templates provided by the lecturers	4.39	0.64

Conclusion:

The findings of the study revealed that most students showed a high level of interests in using On-MITT when learning programming subject. It can be concluded that On-MITT can motivate students to use online learning in class. Adding others type of intelligence in On-MITT should be developed in order to achieve an effective teaching and learning process.

ACKNOWLEDGMENTS

Siti Nurul Mahfuzah Mohamad would like to thank her primary advisor, Prof. Madya Dr. Sazilah Salam and Dr. Norasiken Bakar for their advice, support, encouragement and guidance. Thank you to the Ministry of Higher Education Malaysia (MOHE) who sponsor her study and deep appreciation are also dedicated to anyone who directly or indirectly involved in this study. This paper is supported by UTeM (Universiti Teknikal Malaysia Melaka) under project no MTUN/2012/UTeM-FTMK/10 M00018.

REFERENCES

- Alis, M., S. Zarina, 2007. *Faktor-Faktor Kegagalan- Pandangan Pelajar Yang Mengulang Kursus Pengaturcaraan C*. Jabatan Sains Komputer. Universiti Kebangsaan Malaysia.
- Derus, S.R.M., Z. Ahmad, 2012. Difficulties in learning programming: Views of students. *1st International Conference on Current Issues in Education (ICCIE 2012)*, (pp: 74-79). Yogyakarta State University.
- Embi, M.A., M.N. Adun, 2010. *E-pembelajaran di IPTA Malaysia*. Pusat Pembangunan Akademik & JPT. Klang.
- Gardner, H., 2006. *Multiple intelligences*. New horizons. New York: Basic Books.
- Takemura, H.T.Y., N. Hideo, N. Naoya, 2012. Work in Progress: Analysis of the Relationship between Teaching Contents and Motivation in Programming Education. *Frontiers in Education Conference Proceedings*, (pp: 1-2).