VOL. 9, NO. 8, AUGUST 2014 ISSN 1819-6608
ARPN Journal of Engineering and Applied Sciences

www.arpnjournals.com

A SURVEY ON THE APPLICATION OF ROBOTIC TEACHER IN MALAYSIA

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ABSTRACT

Robot application in Malaysia is just a couple of number these days contrast with different nations particularly in education. Robotic teacher application is likewise not extremely commonplace around Malaysian students. The survey is intended to distinguish the sentiment around Malaysian technical institutes about utilization of robotic teacher in their organization. An overview was developed and dispersed by utilizing web interface that is Google Form application. The result demonstrates that the greater part of students who completed the survey do not consent to utilize a robot as a teacher. Numerous Malaysian individuals finished not think about the genuine proficiency of a robotic teacher. A further study about this theme will be led after this investigation.

Keywords: Robotic teacher, application, learning.

INTRODUCTION

As a human, there are likewise various types of teaching method. There are always questions highlighted that it is, is adequate or not to make students completely comprehend what they attempt to educate. What's more yes, a few students are neglected to comprehend what they take in because of numerous factors, one of them is teaching method conveyed by their teacher. Living in a world that undeniably propelled, constrained human to find some other elective to make the instruction more viable. One of the finding is utilizing robots as a part of teaching session.

According to [1], there are twelve potential sources of evidence to measure teaching effectiveness that are critically reviewed; student ratings, peer ratings, self-evaluation, videos, student interviews, alumni ratings, employer ratings, administrator ratings, teaching scholarship, teaching awards, learning outcome measures, and teaching portfolios. From [2], it is stated that the strategies to convey learning are; practical examples, show and tell, case studies, guided design projects, open-ended labs, the flowchart technique, open ended quizzes, brainstorming, question-and-answer method, software, teaching improvement, and fast feedback form.

In order to understand about robot teacher, basic information about robot must be learned first. A robot is a mechanical device that can perform preprogrammed physical tasks. It may act under the direct control of a human or automatically under the control of a pre-programmed computer. Robot can be classified by several types. There is industrial, mobile, service, military, humanoid and other type of robot.

In a research conducted by [3], the research is aim to find the possibilities of using humanoid robots as instructional tools for teaching second language in primary school. They found that the absolute majority of the students actively participated in learning activities throughout the lesson and interacted with the robot-teachers with great interest.

Numerous researches about robot teacher have been carried out in other nation particularly at the advancing countries, for example, Japan and United State. It is accepted that the level of competencies and thinking in instruction for Malaysian's students is much distinctive contrast with different countries. Consequently, a considerable measure of exploration is required to know the suitability of utilizing robots within teaching Malaysian individuals. The focus of this paper is to know the feedback of Malaysian technical students about the application of robotic teacher.

SURVEY

Main subject of this survey is the feedback from the respondents. Respondents are consisting of Malaysian technical students from technical universities (Universiti Teknikal Malaysia Melaka, Universiti Malaysia Pahang, Universiti Tun Hussein Onn Malaysia, and Universiti Malaysia Perlis). The survey's questions was created and it then distributed by using Google Form. The link of this form was shared at social webpages of the technical universities that listed. The survey's question is constructed as follow:

1. Is there any robot used in your university?
2. If yes, what they are used for?
3. What your level is of exposed with robot?
4. Have you ever experience a teaching delivered by a ROBOT?
5. Just imagine, what will you feel when a robot is teaching your subject in class?
6. In your experience, is teaching method delivered by a human teacher is effective enough?
7. In your opinion, what will affect the effectiveness of delivering lesson?
8. In your prediction, will robot teach students more effective than human teacher did?
9. Opinion.

Aim of this form is to observe responses from technical students about usage of a robot as a teacher. The result of this form will be used as a data collection for my master degree thesis. Thank you for for your time and response. :)

* Required

Gender *
- Male
- Female

Your current university *
- Universiti Teknikal Malaysia Melaka (UTeM)
- Universiti Tun Hussein Onn Malaysia (UTHM)
- Universiti Malaysia Pahang (UMP)
- Universiti Malaysia Perlis (UniMaP)
- Other:

1. Is there any robot used in your university? *
- Yes
- No

2. If yes, what they are used for? *

You can tick more than one
- Teaching tool
- Laboratory equipment
- Student's project
- Display
- Contest
- Other:

3. What is your level of exposed with robot? *

1 2 3 4 5 6 7 8 9 10

None ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ Most frequent

4. Have you ever experience a teaching delivered by a ROBOT? *
- Yes
- No

Occupation *
- Student
- Lecturer
- Other:

5. Just imagine, what will you feel when a robot is teaching your subject in class? *

You can tick more than one
- Anxious/Resah
- Apathy/Tidak Peduli
- Bored/Bosan
- Cautious/Waspada
- Confident/Yakin
- Distracted/Terganggu
- Excited/Teruja
- Fatigue/Kaku
- Fear/Takut
- Hesitant/Ragu
- Impressed/Kagum
- Inspired/Inspirasi
- Panic/Panik
- Peaceful/Aman
- Pressured/Tertekan
- Relaxed/Tenang
- Satisfied/Puas Hati
- Other:

6. In your experience, is teaching method delivered by a human teacher is effective enough? *
- Yes
- No

7. In your opinion, what will affect the effectiveness of delivering lesson? *
- Interaction
- Teaching method
- Teaching skills
- Communication
- Facilities
- Other:

8. In your prediction, will robot teach students more effective than human teacher did? *
- Yes
- No

Please give your opinion

Submit

Figure-1. Survey's question using Google Form (minimized).

The purpose of the first and the second question is to know the alertness of respondent on the existing robot at their place. The third and the fourth question are constructed to know the exposure condition among the respondents. While, the other questions are asked in order to know about respondent's feedback on the application of the robot teacher.

RESULT

There are a total of 67 respondents. 45 out of them are male and 22 persons are female. Total of respondents according to each universities are 30 persons (45%) from Universiti Teknikal Malaysia Melaka, 12 people (18%) from Universiti Tun Hussein Onn Malaysia, 15 people (23%) from Universiti Malaysia Pahang, 8 people (12%) from Universiti Malaysia Perlis, and a person (2%) from other institution. According to the survey, there are 59 students, 3 lecturers, and 4 others. Below are the graphs of results of each question.

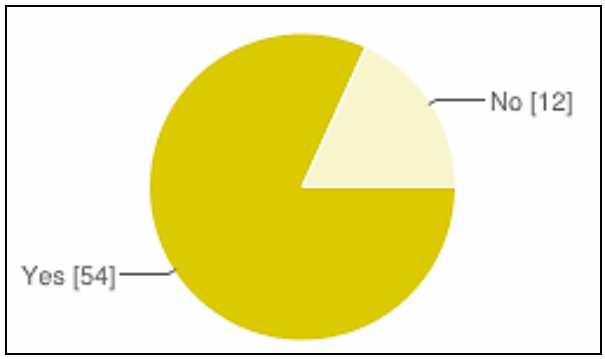

Figure-2. Result of Question-1.

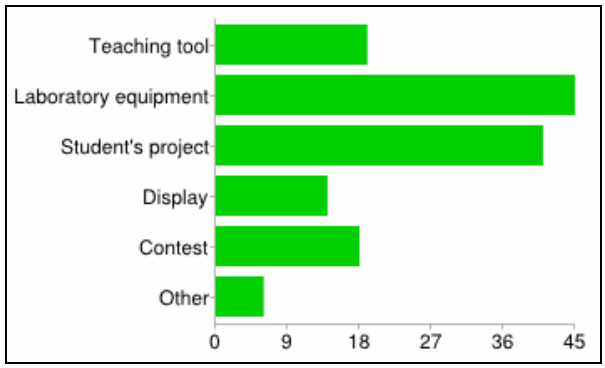

Figure-3. Result of Question-2.

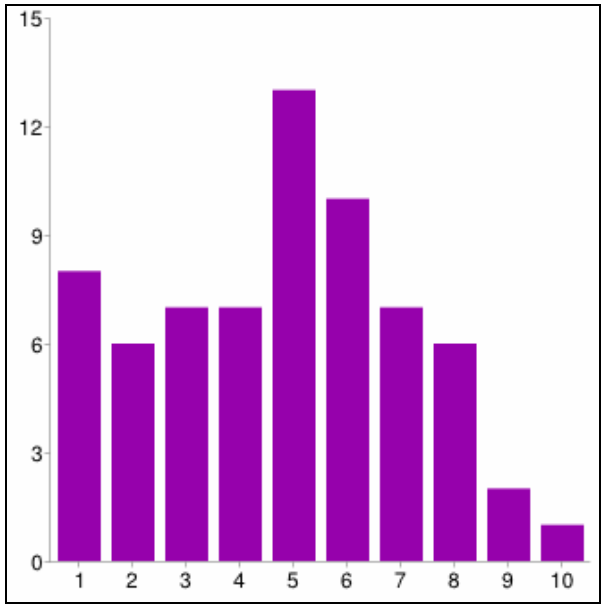

Figure-4. Result of Question-3.

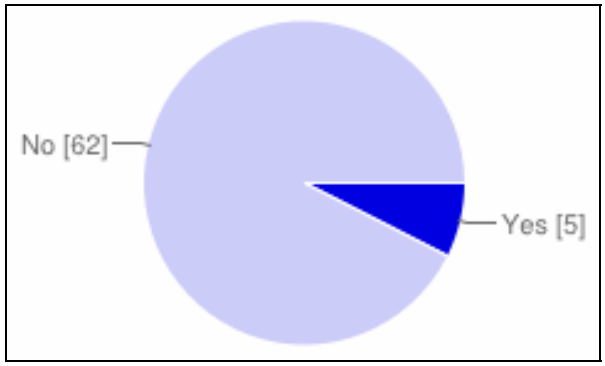

Figure-5. Result of Question-4.

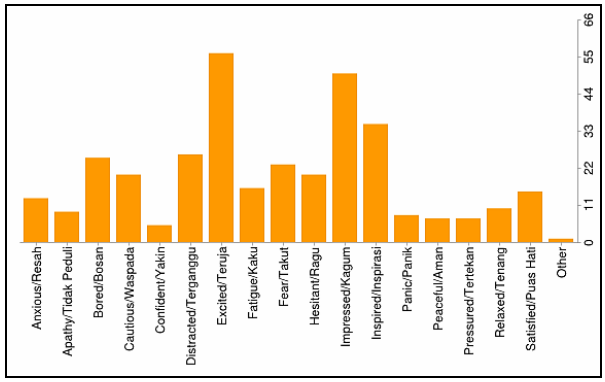

Figure-6. Result of Question-5.

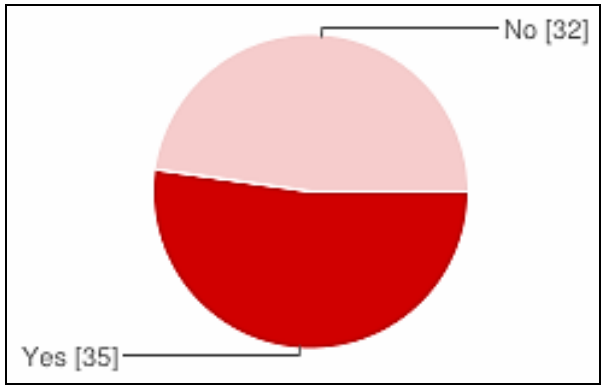

Figure-7. Result of Question-6.

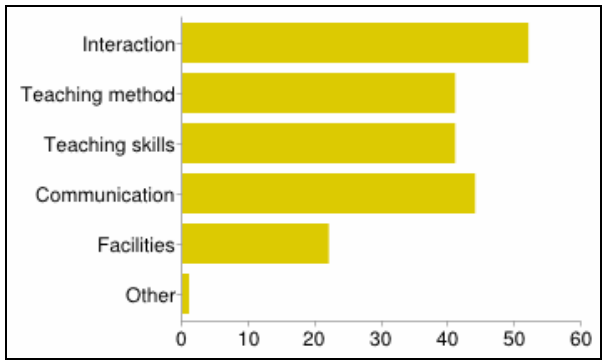

Figure-8. Result of Question-7.

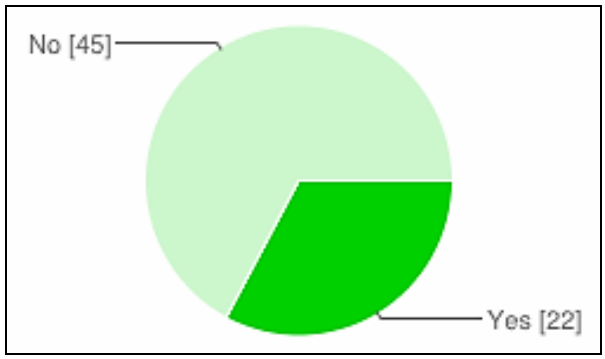

Figure-9. Result of Question-8.

DISCUSSIONS

Figure-2 shows the result for the first question. The question asks about the existing robot in their university. It is shown that 54 respondents state that there is robot(s) in used in their university. While the other 12 respondents stated that robot is not in used in their institute. It is shown that some of them are not alert enough about the robot. This situation may due to they did not use robot in their study. The second question (Figure-3) asked about the function of robot in their university if there is any robot in used. From the list of function suggested, the highest number is 45 which is laboratory equipment. The second highest usage of robot is for student's project with 41 respondents, followed by teaching tool, contest, display, and other with values of 19, 18, 14, and 6 subsequently. The next graph (Figure-4) shows the result for the third question. The question is asking about the level of exposure of respondents with robot. In the question, there are 10 level of exposure. Which is Level 1 is the fewest, while Level 10 is the most frequent. From the result, it is shown that most of the respondents are level 5 for the question. The highest value is 13 respondents with 19% of the graph, followed by the second highest with value of 10 respondents (15%) which is level 6. The third highest value of respondent is level 1 which has the number of respondent of 8 (12%). Level 3, 4, and 7 have the same number of respondent that is 7 (10%). Meanwhile, level 2 and 8 share the same value of 6 respondents (9%). Level 9 and 10 has the smallest value with 2 (3%) and 1 (1%) respectively. It is shows that most of the respondents have average level of experience.

The next question (Figure-5) is about the experience of respondents in teaching by robot. Most of them say no with the number of 62 respondents, while the other 5 respondents have experience learning from robot. Respondents do not have experience yet in having a lesson delivered by a robot. The graph in Figure-6 shows the statistical result of feelings by respondents. There are 17 feelings that listed in the question. Respondents can choose more than one feeling to answer the question. Most of the respondents feel excited when they imagine getting lesson from a robot. There are 56 people that feel that way with the highest percentage of 16%. The second highest is impressed feeling with 50 people, followed by inspired expression with 35 people. The lowest number of results in the graph is confident with 5 respondents. Most of the respondents responded to be excited as because they never imagine robot cannot do such things.

The graph in Figure-7 shows the opinion from the respondents on the effectiveness of teaching by human teacher. It is shown that 35 people are agreed that human teacher already teach in an effective way, while the other 32 feel that it is not good enough. In Figure-8, there are 52 people choose on interaction factor that will affect the effectiveness on delivering lesson. This is the highest number of factor selected among the other factor. Meanwhile, communication factor become the second highest of option from the respondents with value of 44. This is followed by teaching method and teaching skills that shared the same value of number of choice from the respondents. There are least people that choose facilities as the factor. Interaction factor become the highest choice from the respondents because the might be known that, to achieve a full understanding from each other, interaction is important to each other.

The graph of Figure-9 shows the result on the prediction of respondents about comparison of effectiveness of teaching by both human and robot. Majority of them, with 45 number of people, disagree with the statement that robot will teach more effective than human teacher did. The rest of the respondent, with 22 numbers of respondent, have a positive feedback that believe robot will teach better than the human teacher did.

Below is the list and summary of the last survey's question, that asking about the respondent's opinion about robotic teacher. Overall of the result shows that mostly human still did not have believed in robot in delivering lesson.

Table-1. List and summary of respondent's opinion.

Positive opinion	Negative opinion
Both robot and human can be a good teacher	Robot did not have feeling like human
Robot is fun	A teacher is a human that know how their student perform. They can approach that kind of student
Robot can attract people to learn better	Teacher will lose their job
Useful for future study	Beware of 3 Asimov law of robot
High technology robot can replace human in the future	Robot is dangerous to human being
Everything have their own weakness, both human and robot	Robot is heartless, human is close with human heart

CONCLUSIONS

Through the result that we get by this survey, we can see that the implementation of robot teacher have many challenges. This is because there are many respondents that still not believe about the effectiveness of robot teacher (Figure-8). Although when we ask about their feeling when robot give them a teaching lesson, most of them feel excited and impressed (Figure-5).

So, we have decided to further this study in order to identify the effectiveness of robot teacher in delivering technical lesson to human. The study will involve a robot who will teach the respondents and then the respondents will have to fill up a survey form.

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