

# Education 4.0: An Analysis of Teachers' Attitude towards the Use of Technology in Teaching Mathematics

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**Abstract**—This study investigates mathematics teachers' readiness towards Education 4.0 and their attitude towards the use of technology in teaching mathematics. The study participants included 162 mathematics teachers in Kota Bharu, Kelantan. A quantitative approach with a questionnaire was employed in this study. Data collected were analysed by using descriptive and *t*-tests and analysis of variance using Statistical Package for the Social Sciences version 27. The overall results for mathematics teachers' readiness towards Education 4.0 lead to uncertainty, which indicates that teachers are still not prepared and lack knowledge about Education 4.0. When grouped according to age, gender and grade level taught, the results show that there is no significant difference between teachers' readiness towards Education 4.0. Meanwhile, for attitude, the results reveal that teachers have a positive attitude towards the use of technology in teaching mathematics, regardless of their age, gender or grade level taught. However, it shows a significant difference between male and female teachers' attitudes. For age and grade level taught, the results show no significant difference between mathematics teachers' attitudes towards the use of technology in teaching the subject. Therefore, the study recommends that teachers should strengthen their positive attitude towards the use of technology in teaching and learning and that the higher authorities also should participate in providing teachers knowledge on Education 4.0 and helping them adapt to current educational changes.

**Index Terms**—Education 4.0, mathematics, teachers' attitude, technology.

## I. INTRODUCTION

The Industrial Revolution 4.0 (IR 4.0), also known as the Fourth Industrial Revolution, has brought many changes in various aspects of our life in recent years. IR 4.0 undoubtedly brought about rapid changes in the way people live, work, communicate and interact. IR 4.0 also had a large impact on industries, and education is one industry affected by it.

With the advent of IR 4.0, the role of education has changed, and it called for emerging needs. IR 4.0 brings us the development of Education 4.0, a term used by theorists to describe the various ways in which technology is integrated into the educational process. Hoyles and Lagrange [1] state that technology is the thing that most affects the education

system in the world today. This is because of the aspects of effectiveness, efficiency and attractiveness offered by digital technology based learning.

With the advent of IR 4.0, the level of readiness of teachers in facing Education 4.0 is one of the most important aspects to address changes towards the effective teaching and learning of mathematics. In addition, with our current global crisis due to the spread of the coronavirus disease 2019 epidemic, learning and teaching have been delayed and have made teachers' tasks increasingly challenging as teachers have to adapt to new life norms and habits that require online teaching and learning. The role of technology has also become more important, especially in the field of education as the basis for the transmission of knowledge.

The issue of changes in teachers' attitude in teaching mathematics owing to the new norms of education has attracted much interest from many researchers. Therefore, we decided to conduct a study on mathematics teachers' readiness towards Education 4.0 and their attitude towards the use of technology in teaching mathematics. We focused on primary and secondary school mathematics teachers in Kota Bharu, Kelantan.

Six affective variables, namely, knowledge and awareness, mathematics confidence, confidence with technology, attitude to learning mathematics with technology, behavioural engagement and affective engagement, were used in this study to measure mathematics teachers' readiness towards Education 4.0 and their attitude towards the use of technology in teaching the subject.

According to Lai, Chundra and Lee [2], educators' knowledge and awareness of the IR 4.0 context are still unclear. Teachers lack confidence in applying IR 4.0 in teaching and still face difficulties in adapting new education reforms. Regarding mathematics confidence, Dance and Kaplan [3] state that mathematical confidence is characterised by a readiness to persevere, a positive attitude towards mistakes, a willingness to accept chances and self-reliance, all of which are traits of a development mind-set. Teacher confidence is significant not just because it has been linked to the quality of education, as observed by Stipek, Givvin, Salmon and MacGyvers [4], but also because it has the ability to duplicate positive or negative effects in students.

Confidence with technology is regarded as the ability of using technological tools or software in the teaching and learning process. According to Smith [5], teachers who use technology wisely can broaden the knowledge of every student, from the gifted student to the student who requires a different medium to learn. Meanwhile, attitude in learning mathematics refers to how technology improves teaching and learning mathematics. Mathematics is the foundation of all

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technologies, and technologies aid in the teaching of mathematics.

Behavioural engagement is focused more on the classroom established by mathematics teachers and the teacher-student interaction in class when teaching mathematics using technology. Behavioural engagement is concerned with levels of participation and involvement in school-related academic, social, or extra-curricular activities [2]. Affective engagement is indicated as the teacher’s feeling of engagement towards the mathematics teaching and learning process during this new mode of teaching by using technology to teach the subject.

This study aimed to investigate teacher’s readiness towards Education 4.0 and their attitude towards the use of technology in teaching mathematics using a questionnaire. Specifically, this research was conducted:

- To determine the significant difference in teachers’ knowledge and awareness towards Education 4.0 when grouped according to age, gender and grade level taught.
- To determine the significant difference in teachers’ attitude towards the use of technology in teaching mathematics when grouped according to age, gender and grade level taught.

It is hoped that this study will be the starting point for further research in measuring teachers’ attitudes towards the use of technology in teaching and learning for all subjects, not just mathematics. Further, it is hoped that this study will be a reference for the Ministry of Education, Malaysia, and teachers themselves on the importance of teachers’ attitudes towards the use of technology along with current educational developments, Education 4.0.

## II. METHOD

In this study, researchers used a quantitative approach. The approach survey method was used to collect data for this study by distributing questionnaires to primary and secondary school teachers in Kota Bharu, Kelantan.

A sample of this research was taken from a group of 86 primary school mathematics teachers and 306 secondary school mathematics teachers in Kota Bharu, Kelantan. The schools were randomly selected. A total of 162 research respondents voluntarily participated in this study. The respondents were grouped according to their profile variables such as age, gender and grade level taught, which is primary, lower secondary and upper secondary, as shown in Table I.

TABLE I: PROFILE OF THE RESPONDENTS

Profile Variables	f	%
<b>Age (years)</b>		
31–40	19	11.7
41–50	77	47.5
51 and above	66	40.7
Total	162	100.0
<b>Gender</b>		
Male	42	25.9
Female	120	74.1
Total	162	100.0
<b>Grade level taught</b>		
Primary	62	38.3
Lower secondary	58	35.8
Upper secondary	42	25.9
Total	162	100.0

Table I shows that 19 respondents (11.7%) were aged 31–40 years, 77 (47.5%) were 41–50 years and 66 (40.7%) were above 51 years. This shows that the majority of participants in this research were aged 41 years and above. A total of 42 respondents (25.9%) were males, whereas 120 (74.1%) were females.

The research instrument utilised in this study was the Mathematics and Technology Attitude Scale, developed by Pierce, Stacey and Barkatsas [6], which monitors five affective variables: mathematics confidence, confidence with technology, attitude to learning mathematics with technology, behavioural and affective engagement. This questionnaire was originally developed for middle secondary year students but was later modified by Marpa [7] to suit mathematics teachers as participants.

For this study, the amended questionnaire by Marpa [7] was adjusted to suit our research purposes. Fourteen more items were added to the original 20-item test, which are related to the knowledge and readiness of mathematics teachers in facing Education 4.0. These items were scored on a 5-point Likert scale.

To establish reliability, the modified research instrument was pilot tested on 15 mathematics teachers, both private and public, who were not included in the study’s actual respondents. Cronbach’s alpha was used to determine reliability, and the alpha coefficient was found to be 0.95. This coefficient of reliability indicates that the research instrument was reliable.

The collected data were then analysed by using the Statistical Package for the Social Sciences software version 27. Descriptive analyses were conducted on the variables in the questionnaire. After the data were collected, the researcher analysed the background of respondents by the frequency and percentage. The Mean (M) and Standard Deviation (SD) were used to measure the mathematics teachers’ readiness towards Education 4.0 and their attitude towards the use of technology in teaching mathematics according to their age, gender and grade level taught. Meanwhile, inferential analyses, which included the t-test and one-way analysis of variance (ANOVA), were used to determine the significant difference in mathematics teachers’ readiness towards Education 4.0 and their attitude towards the use of technology in teaching the subject.

## III. RESULTS AND DISCUSSION

Descriptive analyses were conducted to evaluate the mean and SD of mathematics teachers’ knowledge and awareness towards Education 4.0. Table II shows the results of our descriptive analyses.

TABLE II: DESCRIPTIVE RESULTS OF MATHEMATICS TEACHERS’ KNOWLEDGE AND AWARENESS TOWARDS EDUCATION 4.0

Category	Mean	Standard Deviation
Knowledge and awareness	3.16	0.77

Note: The mean scores were interpreted as follows: 1.00–1.80: strongly negative; 1.81–2.60: negative; 2.61–3.40: uncertain; 3.41–4.20: positive; and 4.21–5.00: strongly positive

The results in Table II show that when it comes to knowledge and awareness towards Education 4.0, mathematics teachers are uncertain ( $M = 3.16, SD = 0.77$ ).

This demonstrates that mathematics teachers in Kota Bharu are still unfamiliar with Education 4.0 and are unsure on how to adapt to this new way of teaching.

TABLE III: DESCRIPTIVE RESULTS OF MATHEMATICS TEACHERS KNOWLEDGE AND AWARENESS TOWARDS EDUCATION 4.0 BASED ON AGE, GENDER AND GRADE LEVEL TAUGHT

Variable	Knowledge and Awareness	
	Mean	Standard Deviation
<b>Age (years)</b>		
31–40	3.12	0.72
41–50	3.17	0.82
51 and above	3.16	0.73
<b>Gender</b>		
Male	3.15	0.74
Female	3.16	0.78
<b>Grade level taught</b>		
Primary	3.16	0.75
Lower secondary	3.11	0.73
Upper secondary	3.23	0.85

Note: The mean scores were interpreted as follows: 1.00–1.80: strongly negative; 1.81–2.60: negative; 2.61–3.40: uncertain; 3.41–4.20: positive and 4.21–5.00: strongly positive

When grouped according to age, Table III shows that teachers aged 31–40 years old ( $M = 3.12, SD = 0.72$ ), 41–50 years old ( $M = 3.17, SD = 0.82$ ) and 51 and above years old ( $M = 3.16, SD = 0.73$ ) are uncertain about knowledge and awareness towards Education 4.0. When the results were grouped according to gender, they revealed that both male ( $M = 3.16, SD = 0.77$ ) and female ( $M = 3.16, SD = 0.77$ ) mathematics teachers are uncertain when it comes to knowledge and awareness towards Education 4.0. Moreover, primary school teachers ( $M = 3.16, SD = 0.75$ ), lower secondary school teachers ( $M = 3.11, SD = 0.73$ ) and upper secondary school teachers ( $M = 3.23, SD = 0.85$ ) were uncertain when it comes to knowledge and awareness towards Education 4.0.

Therefore, we can conclude that all teachers, regardless of their age, gender or grade level, are still unfamiliar and still lack knowledge about Education 4.0. According to Sani [8], lecturers’ understanding of the IR 4.0 context still remains unclear. Razak, as cited by Lai, Chundra and Lee [2], stated that the fundamental issue is that most lecturers do not understand the rationale for the changes or what role they must play in implementing IR 4.0-based teaching and learning. He also wrote that this was agreed upon by Syarifuddin and Halim [8], who stated that educators are unaware of the most recent changes and do not see the need to modify their teaching tasks. As a result, any changes to the curriculum or education system must be widely disseminated and explained clearly to educators [9]–[11].

#### Mathematics Teachers’ Knowledge and Awareness Towards Education 4.0 based on Gender, Age and Grade Level

Independent sample  $t$ -tests were used to assess the teachers’ knowledge and awareness towards Education 4.0. Table IV shows the  $t$ -test results of male and female teachers’ knowledge and awareness towards Education 4.0.

Table IV indicates that there was no significant difference in male and female mathematics teachers’ knowledge and awareness towards Education 4.0 ( $t_{df} = -0.13, p = 0.43$ )

when a  $t$ -test for independent means was used to assess this.

TABLE IV:  $t$ -TEST RESULTS OF MALE AND FEMALE MATHEMATICS TEACHERS’ KNOWLEDGE AND AWARENESS TOWARDS EDUCATION 4.0

Category	Gender		$t$	P	Df
	Male	Female			
Knowledge and awareness	3.15 (0.74)	3.16 (0.68)	-0.13	0.43	160

Note: Standard deviations appear in parentheses to the right of the means

TABLE V: ANOVA RESULTS FOR MATHEMATICS TEACHERS’ KNOWLEDGE AND AWARENESS TOWARDS EDUCATION 4.0 WHEN GROUPED BY AGE AND GRADE LEVEL TAUGHT

Variable	Knowledge and Awareness		
	Mean	F	P
<b>Age (years)</b>			
31–40	3.16 (0.72)		
41–50	3.17 (0.82)	0.04	0.96
51 and above	3.16 (0.73)		
<b>Grade level taught</b>			
Primary	3.16 (0.75)		
Lower secondary	3.11 (0.73)	0.29	0.75
Upper secondary	3.23 (0.85)		

Note: Standard deviations appear in parentheses to the right of the means

TABLE VI: DESCRIPTIVE RESULTS ON MATHEMATICS TEACHERS’ ATTITUDE TOWARDS THE USE OF TECHNOLOGY IN TEACHING MATHEMATICS

Category	Mean	Standard Deviation
Behavioural engagement	4.19	1.26
Confidence with technology	3.22	0.67
Mathematics confidence	3.67	0.66
Affective engagement	3.67	0.62
Attitude to learning		0.69
Mathematics with technology	3.67	0.69
<b>Overall mean</b>	3.68	0.57

Note: The mean scores are interpreted as follows: 1.00–1.80: strongly negative; 1.81–2.60: negative; 2.61–3.40: uncertain; 3.41–4.20: positive and 4.21–5.00: strongly positive

Table V shows that there was no significant difference between mathematics teachers’ age ( $F(2,159) = 0.04, p = 0.96$ ) and grade level taught ( $F(2,159) = 0.29, p = 0.75$ ) regarding the attitude of teachers’ knowledge and awareness towards Education 4.0 when ANOVA was used to assess this variable.

Table VI reveals that mathematics teachers were positive towards the use of technology in teaching mathematics ( $M = 3.68, SD = 0.57$ ). This shows that they believed that using technology to teach mathematics, especially during the Education 4.0 phase, was the best approach to improve mathematics teaching and learning. In addition, teachers were also positive ( $M = 3.67, SD = 0.69$ ) towards learning mathematics using technology. Besides, the teachers believed that using technology in teaching mathematics in this new normal education can increase their confidence in teaching the subject ( $M = 3.67, SD = 0.66$ ).

Table VII reveals that mathematics teachers’ attitude towards the use of technology in teaching mathematics when grouped according to the age group of 31–40 years ( $M = 3.47, SD = 0.48$ ), 41–50 years ( $M = 3.71, SD = 0.61$ ) and 51 years and above ( $M = 3.71, SD = 0.54$ ) was positive. Teachers aged 41–50 years were strongly positive in terms of behavioural engagement ( $M = 4.27, SD = 1.22$ ). Meanwhile, teachers aged 31–40 years also had a positive attitude in all categories, except for confidence with technology, which was uncertain ( $M = 3.12, SD = 0.58$ ). Hence, the results presented in this table shows that overall,

teachers of age 41–50 years and 51 years and above have a better attitude towards using technology in teaching mathematics.

TABLE VII: DESCRIPTIVE RESULTS OF MATHEMATICS TEACHERS' ATTITUDE TOWARDS THE USE OF TECHNOLOGY IN TEACHING MATHEMATICS GROUPED BY AGE

Category	31–40		41–50		51 and above	
	M	SD	M	SD	M	SD
Behavioural engagement	3.89	1.28	4.27	1.22	4.18	1.31
Confidence with technology	3.12	0.58	3.23	0.74	3.24	0.61
Mathematics confidence	3.37	0.57	3.65	0.72	3.78	0.58
Affective engagement	3.51	0.60	3.68	0.68	3.69	0.56
Attitude to learning mathematics with technology	3.45	0.66	3.72	0.71	3.67	0.68
<b>Overall mean</b>	<b>3.47</b>	<b>0.48</b>	<b>3.71</b>	<b>0.61</b>	<b>3.71</b>	<b>0.54</b>

Note: The mean scores are interpreted as follows: 1.00–1.8: strongly negative; 1.81–2.60: negative; 2.61–3.40: uncertain; 3.41–4.20: positive; and 4.21–5.00: strongly positive

TABLE VIII: DESCRIPTIVE RESULTS OF MALE AND FEMALE TEACHERS' ATTITUDE TOWARD THE USE OF TECHNOLOGY IN TEACHING MATHEMATICS

Category	Male		Female	
	Mean	Standard Deviation	Mean	Standard Deviation
Behavioural engagement	3.46	1.64	4.44	0.99
Confidence with technology	3.30	0.62	3.20	0.69
Mathematics confidence	3.56	0.64	3.71	0.66
Affective engagement	3.62	0.60	3.68	0.63
Attitude to learning Mathematics with technology	3.72	0.77	3.65	0.67
<b>Overall mean</b>	<b>3.53</b>	<b>0.70</b>	<b>3.73</b>	<b>0.51</b>

Note: The mean scores are interpreted as follows: 1.00–1.80: strongly negative; 1.81–2.60: negative; 2.61–3.40: uncertain; 3.41–4.20: positive and 4.21–5.00: strongly positive

Table VIII shows that both male ( $M = 3.53, SD = 0.70$ ) and female ( $M = 3.73, SD = 0.51$ ) mathematics teachers were positive towards the use of technology in teaching mathematics. Male teachers were mostly positive towards using technology in teaching mathematics except for confidence with technology ( $M = 3.30, SD = 0.62$ ). On the other hand, female teachers showed a positive attitude towards the use of technology in teaching mathematics. However, like male mathematics teachers, female teachers also showed uncertainty when it comes to confidence with technology ( $M = 3.20, SD = 0.69$ ). The results presented in this table show that overall, female mathematics teachers have a better attitude towards using technology in teaching the subject.

Table IX indicates that the teachers' attitude towards the use of technology in teaching mathematics when grouped according to grade level taught, primary school teachers ( $M = 3.61, SD = 0.74$ ), lower secondary school teachers ( $M = 3.50, SD = 0.77$ ) and upper secondary school teachers ( $M = 3.71, SD = 0.83$ ), were all positive. In

almost all categories, primary and lower secondary school teachers showed a positive attitude, except for confidence with technology, which had uncertain results. Meanwhile, for upper secondary school teachers, Table IX shows that they were strongly positive in terms of behavioural engagement ( $M = 4.39, SD = 1.29$ ) but uncertain in terms of confidence with technology. Thus, this result shows that overall, upper secondary school teachers have a better attitude towards using technology in teaching mathematics.

### Mathematics Teachers' Attitude Towards the Use of Technology in Teaching Mathematics Based on Age, Gender and Grade Level Taught

Table X shows the ANOVA results of mathematics teachers' attitude towards the use of technology in teaching the subject when grouped according to their age.

TABLE IX: DESCRIPTIVE RESULTS OF PRIMARY, LOWER SECONDARY AND UPPER SECONDARY SCHOOL TEACHER'S ATTITUDE TOWARDS THE USE OF TECHNOLOGY IN TEACHING MATHEMATICS

Category	Primary School Level		Lower Secondary School Level		Upper Secondary School Level	
	M	SD	M	SD	M	SD
Behavioural engagement	4.10	1.24	4.14	1.27	4.39	1.29
Confidence with technology	3.30	0.59	3.12	0.70	3.24	0.75
Mathematics confidence	3.72	0.57	3.46	0.66	3.90	0.69
Affective engagement	3.66	0.60	3.57	0.61	3.81	0.65
Attitude to learning mathematics with technology	3.70	0.69	3.60	0.67	3.72	0.75
<b>Overall mean</b>	<b>3.61</b>	<b>0.74</b>	<b>3.50</b>	<b>0.77</b>	<b>3.71</b>	<b>0.83</b>

Note: The mean scores are interpreted as follows: 1.00–1.80: strongly negative; 1.81–2.60: negative; 2.61–3.40: uncertain; 3.41–4.20: positive and 4.21–5.00: strongly positive

TABLE X: ANOVA RESULTS FOR MATHEMATICS TEACHERS' ATTITUDE TOWARDS THE USE OF TECHNOLOGY IN TEACHING MATHEMATICS GROUPED BY AGE

Category	Age (years)	M	F	p
Behavioural engagement	31–40	3.89 (1.28)		
	41–50	4.27 (1.22)	0.67	0.51
	51 and above	4.18 (1.31)		
Confidence with technology	31–40	3.12 (0.58)		
	41–50	3.23 (0.74)	0.26	0.77
	51 and above	3.24 (0.61)		
Mathematics confidence	31–40	3.37 (0.57)		
	41–50	3.65 (0.72)	3.02	0.05
	51 and above	3.78 (0.58)		
Affective engagement	31–40	3.51 (0.60)		
	41–50	3.68 (0.68)	0.67	0.51
	51 and above	3.69 (0.56)		
Attitude to learning mathematics with technology	31–40	3.45 (0.66)		
	41–50	3.72 (0.71)	1.21	0.30
	51 and above	3.67 (0.68)		
<b>Overall attitude</b>	31–40	3.47 (0.48)		
	41–50	3.71 (0.61)	1.55	0.22
	51 and above	3.71 (0.54)		

Note: Standard deviations appear in parentheses to the right of the means

Table X shows that there was no significant difference between the three group of mathematics teachers' age on their attitude towards the use of technology in teaching the

subject ( $F(2,159) = 1.55, p = 0.22$ ) when ANOVA was used to assess this variable.

Table XI presents the  $t$ -test results of male and female teachers' attitude towards the use of technology in teaching mathematics.

TABLE XI: T-TEST RESULTS OF MALE AND FEMALE TEACHERS' ATTITUDE TOWARDS THE USE OF TECHNOLOGY IN TEACHING MATHEMATICS

Category	Gender		$t$	$p$	df
	Male	Female			
Behavioural engagement	3.46 (1.64)	4.44 (0.99)	-4.62*	0.00	160
Confidence with technology	3.3 (0.62)	3.2 (0.69)	0.84	0.40	160
Mathematics confidence	3.56 (0.64)	3.71 (0.66)	-1.21	0.23	160
Affective engagement	3.62 (0.6)	3.68 (0.63)	-0.52	0.60	160
Attitude to learning mathematics with technology	3.72 (0.77)	3.65 (0.67)	0.56	0.57	160
<b>Overall attitude</b>	3.53 (0.70)	3.73 (0.51)	-2.00*	0.05	160

Note: \* $p \leq 0.05$ . Standard deviations appear in parentheses to the right of the means

Table XI shows that there was a significant difference in mathematics teachers' attitude towards the use of technology in teaching mathematics ( $t_{df} = -2.00, p = 0.05$ ) when a  $t$ -test for independent means was used to assess this variable. When categories were considered, significant differences were observed only in terms of behavioural engagement ( $t_{df} = -4.62, p = 0.00$ ).

Table XII reveals the ANOVA results of primary, lower secondary and upper secondary school teachers' attitude towards the use of technology in teaching mathematics.

TABLE XII: ANOVA RESULTS OF MATHEMATICS TEACHERS' ATTITUDE TOWARDS THE USE OF TECHNOLOGY IN TEACHING MATHEMATICS GROUPED BY GRADE LEVEL TAUGHT

Category	Grade Level Taught	M	F	P
Behavioural engagement	Primary	4.10 (1.24)		
	Lower secondary	4.14 (1.27)	0.712	0.49
	Upper secondary	4.39 (1.29)		
Confidence with technology	Primary	3.30 (0.59)		
	Lower secondary	3.12 (0.70)	1.125	0.33
	Upper secondary	3.24 (0.75)		
Mathematics confidence	Primary	0.72 (0.57)		
	Lower secondary	3.46 (0.66)	5.994	0.00
	Upper secondary	3.89 (0.69)		
Affective engagement	Primary	3.66 (0.60)		
	Lower secondary	3.60 (0.61)	1.836	0.16
	Upper secondary	3.81 (0.65)		
Attitude to learning mathematics with technology	Primary	3.70 (0.69)		
	Lower secondary	3.60 (0.67)	0.457	0.63
	Upper secondary	3.72 (0.75)		
<b>Overall attitude</b>	Primary	3.61 (0.51)		
	Lower secondary	3.50 (0.51)	2.11	0.12
	Upper secondary	3.71 (0.65)		

Note: Standard deviations appear in parentheses to the right of the means

Table XII shows that there was no significant difference in primary, lower secondary and upper secondary school teachers' attitude towards the use of technology in teaching

mathematics ( $F(2,159) = 2.11, p = 0.12$ ) when ANOVA was used to assess this variable. However, when categories were considered, significant differences were observed only in terms of mathematics confidence ( $F(2,159) = 5.99, p = 0.158$ ). On the other hand, there was no significant difference in almost all the categories tested.

#### IV. CONCLUSION

The Fourth Industrial Revolution has led to many changes to human life. IR 4.0 has changed aspects of human life in terms of economy, politics, education and others, with many positive influences. However, there are also many shortcomings. Therefore, it is important for everyone to be prepared by equipping themselves with knowledge and readiness to face IR 4.0. In the aspect of education, teachers need to be prepared in improving their attitudes towards the use of technology in this new normal education. Teachers also need to adapt to the current situation in which they need to face technology-literate students, and adapt themselves to various technological methods that can be utilised in the teaching and learning process.

#### CONFLICT OF INTEREST

The authors declare no conflict of interest.

#### AUTHOR CONTRIBUTIONS

Muzirah Musa and Hidayati Zulkipli both contributed to all sections in this paper. Both the authors reviewed the paper and approved the final version of the manuscript.

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