

Technological Development, Knowledge, Attitude and the Use of ChatGPT in the Learning Method of Higher Education Students

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Abstract

This study aims to understand the use of ChatGPT in the learning method, to measure the level of technological development, knowledge, attitude and the use of ChatGPT in the learning method, and to investigate the relationship between technological development, knowledge, attitude and the use of ChatGPT in the learning method of students at the university. The study was conducted using mixed methods, which are qualitative and quantitative. Five students were interviewed as participants for the qualitative method, and 36 responded to the survey. The data was analysed using Thematic Analysis for the interview data and descriptive analysis for the survey. The findings show that the highest mean is technological development, knowledge, and attitude. Findings from this study may serve as a basis for future researchers to analyse other variables in using ChatGPT in the learning method among the more extensive community.

Keywords: Technological Development, Knowledge, Attitude, ChatGPT, Learning Method

INTRODUCTION

In this era of globalization, technology, which is increasingly developing day by day, has become an important source of human life. For example, the use of Google is one of the main milestones in human life today to find any desired information. Humans today have power at their fingertips only. Today's technology should have its own good and evil. Among them is that today's technology facilitates the search for vacant jobs, saves time in transferring money, knowing current information and so on. Meanwhile, the disadvantages of using today's technology are also the occurrence of cyber crimes such as online fraud, cyberbullying and addiction to individuals who misuse technology. The revolution of human development in terms of technology is increasingly being renewed with the emergence of artificial intelligence (AI). Artificial intelligence (AI) is a computer program produced to imitate human intelligence, including the ability to make decisions, logic and characteristics possessed by a human (Bambang Karyadi, 2023). Basically, AI can give the same feedback as humans. According to Agensi Kelayakan Malaysia (Malaysian Qualifications Agency) in 2023, AI applications use algorithms to analyze and synthesize data to create various forms of content that are as new and realistic as those produced by humans. Nowadays, the use of AI is also widely used in learning methods. Among the most popular apps used among students is the ChatGPT app. ChatGPT, which stands for "Chat Generative Pre-trained Transformer", is an AI-based application that helps users obtain information by simply asking questions to the ChatGPT system. ChatGPT is becoming the first choice of students and teachers because it can provide information from various fields and languages. The information analyzed by ChatGPT is obtained from various online channels, including web pages, books and scientific 3 articles (Aseel et al. et al., 2023). The trustworthiness and effectiveness of ChatGPT have become one of the pedagogical tools in learning. Many advantages of ChatGPT make it a top choice in learning methods. Among them is ease of use and time-saving. According to the study of Sakinah Mukhtar Khairi et al. (2023), ChatGPT is an application that is free easily accessible and navigable by the public. Hence, this application became the attraction of many people and created some speculation regarding its functions and effects on ChatGPT users.

The use of ChatGPT is associated with the dependency of an individual using it as a reference in daily life. This can give the impression to individuals that this platform is used incorrectly or there is no presence of ChatGPT in daily affairs. According to the study of Muhammad Jafar Maulana et al. (2023), the use of ChatGPT based on the perspective of academic ethics, the negative tendency of ChatGPT has an impact on the values and behavior of a student. This is because the use of ChatGPT is a challenge to the attitude of complying with academic ethics, such as practicing honesty values, complying with scientific methods, and avoiding acts of imitation and plagiarism. The technological advances introduced by the ChatGPT application today are among one of the popular knowledge-seeking platforms among students. It seems that many students nowadays use the fast way to prepare assignments by simply giving directions to ChatGPT to get answers. The statement by the study above relates to the attitude of students today who depend on the answers provided by the ChatGPT application and undermine the values of honesty. Students only use ChatGPT as the main reference without putting the responsibility and sincerity to find their own answers in other main references such as books and other primary references. In addition, the use of ChatGPT is considered plagiarism because students only input keywords and let technology and robots do the job. ChatGPT also tends to give the same answer to multiple inputs given by the student. So, students who just take the ideas and answers from the ChatGPT app tend to get the same answers and these things cause the loss of student values that should exist in academic ethics.

In addition, the use of ChatGPT has become a problem today because of the extent to which students and teachers trust the validity provided by ChatGPT to be used as the primary reference, especially in

teaching and learning the Quran (Sakinah et al. et al., 2023). This is because students do not know where the references taken by ChatGPT are to be used in scientific writing. Although ChatGPT can provide answers that are congruent with what the user wants, it is essential to assess whether the ideas generated by ChatGPT are feasible and valid to be used by students for assignments. It is also possible that the ChatGPT application takes data from blogs, social media, and so on, which are certainly not accepted valid references. This matter needs to be emphasized because it is also reading material and a source of reference for others. The use of ideas and the arrangement of verses that have no source and uncertainty of their validity causes misunderstanding in the knowledge conveyed. This is even worse when it relates to societal sensitivities such as matters of religion, culture, race, country and others. The debate between publishers has been between Springer-Nature (2023), Taylor & Francis (2023) and Elsevier (2023)—findings from the study of Md. Mizanur Rahman et al. (2023) found that all three international publishers did not accept ChatGPT applications as authors or co-authors. This is because ChatGPT does not provide the references used. Therefore, ChatGPT does not qualify as an author to be used as a student reference in academic writing.

Furthermore, according to a study by Aiman Faiz and Imas Kurniawaty (2023), the dependence of students using the ChatGPT application causes students to lack critical, creative, collaborative and communicative thinking. This is because students who use ChatGPT need to be wise to the output given by the application. For example, the answers given by ChatGPT should be used only to help students improve their language and writing skills and improve grammar and vocabulary (Astro Awani, 2023). However, the problem is that students take all the content provided by ChatGPT, thus destroying their creative value and critical thinking. This case is increasingly worrying many parties because the younger generation now lacks the power of precise thinking and instead only relies on technology that should give goodness and not give a negative impression to the community. The weakness of the current generation in thinking critically has a lot of impact not only on individuals but even on society and the country.

METHOD

The methodology of this study uses a mixed method, namely qualitative and quantitative methods. Qualitative methods are used to collect data to answer objective 1 of this study, namely to understand the use of ChatGPT in the learning method of Year 3 students at Universiti Islam Antarabangsa Malaysia Kampus Pagoh. Subsequently, quantitative methods are applied in this study in the process of collecting data to answer objective two and objective three, namely, to measure the level of technological development, knowledge, attitudes, and the use of ChatGPT in the learning method of Year 3 students at the International Islamic University Malaysia (IIUM) Pagoh campus, then to investigate the relationship between technological development, knowledge, attitudes and the use of ChatGPT in the learning method of Year 3 students at the International Islamic University Malaysia (IIUM) Pagoh campus.

The population for this study involved the students at the International Islamic University Malaysia (IIUM) Pagoh campus. The sample size of this study only includes Year 3 students at the IIUM Pagoh campus. Therefore, the researcher obtained as many as five respondents for the interview method, which are three male students each from the departments of Malay Language for International Communication (MCOM), Arabic Language for International Communication (ACOM), and Tourism Management (TMGT) and two female students each from the departments of Malay Language for International Communication (MCOM), and English Language for International Communication (ECOM).

Then, for the method of research questions, the researchers managed to get data from 36 respondents consisting of 10 male students and 26 female students. The 36 respondents consist of 19 students

majoring in MCOM, 8 students majoring in ECOM, 5 students majoring in TMGT and 4 students majoring in ACOM. As many as 32 respondents are Year 3 Semester 1 students and 4 students are Year 3 Semester 2 students. The researchers also found one respondent aged 20 years old, 26 respondents aged 21 years old, 5 respondents aged 22 years old, and 4 respondents aged 23 years old. Finally, 18 respondents got a grade point average (GPA) of 3.50 - 3.69, 11 respondents got a grade point average (GPA) of 3.31 - 3.49, 3 respondents got a high grade point average (GPA), which was 3.70 - 3.89, 2 respondents got grade point average (GPA) of 3.00 - 3.30, one respondent got the highest grade point average (GPA), which is 3.90 - 4.00 and also one respondent got the lowest grade point average (GPA) in the choice of answer to the questionnaire, which is 2.50 - 2.99.

The researcher used a structured interview data collection technique to ensure that the data obtained was complete to answer objective 1 of this study. Accordingly, the researcher provided seven questions before being asked to the respondents. All questions asked covered aspects of the use of ChatGPT in the learning methods of Year 3 students at the IIUM Pagoh campus. For each question asked during the interview session with the respondents, the researcher asked the respondents to share their stories and experiences so that the data obtained is complete for analysis. The researcher has also selected as many as five respondents who have used ChatGPT in learning methods throughout their studies at the IIUM Pagoh campus. To ensure that the data collected is comprehensive, the reviewer met the respondents from all four departments at UIAM Kampus Pagoh, namely the departments of Arabic for International Communication (ACOM), English for International Communication (ECOM), Malay for International Communication (MCOM) and Tourism Management (TMGT). The researcher also recorded the interview session with all respondents using a mobile phone to ease the data analysis process.

The researcher provided a questionnaire for quantitative methods to obtain data from Year 3 students at the IIUM Pagoh campus. This Google Form questionnaire is circulated online using WhatsApp and Telegram platforms. This questionnaire consists of five sections. Section A refers to the demographic questions of the respondents; section B refers to the dependent variable of this study, which is the use of ChatGPT; section C is independent variable 1, which is technological development; section D is independent variable 2, which is knowledge, and section E refers to independent variable 3 which is attitude. Part A, which is the demographic questions of the respondents, consists of six questions, which are name, gender, age, semester choice for Year 3, course and grade point average.

The questions and statements contained in the questionnaire of this study have gone through the process of adopting or adapting questions from past studies. The researcher adjusts the questions of the past studies to the topic of the study being carried out. As a result of going through the process of adopting or adapting questions from past studies, part B of the dependent variable i.e. the use of ChatGPT in learning methods consists of seven questions, part C of independent variable 1 i.e. technological development, and part D of independent variable 2 i.e. knowledge have the same number of questions, i.e. six questions. Finally, section E which is independent variable 3, i.e. attitude consists of seven questions. The answers to these questions are measured by a Likert scale, i.e. a scale of 1 to 5. Scale 1 represents strongly disagree, scale 2 disagrees, scale 3 is neutral, scale 4 represents agree and scale 5 is strongly agree. The questionnaire has received instrument validity from Dr. Siti Yuliandi binti Ahmad, a lecturer at Kulliyah of Sustainable Tourism and Contemporary Languages, IIUM Pagoh campus.

The researcher uses an analysis technique that coincides with the results of the study to produce completed study data. Therefore, the researcher used thematic analysis to analyze the qualitative data by using the ABC Model Theory (Eagly & Chaiken, 1998). The researcher used descriptive analysis, that is, intermediate data, to analyze the objective quantitative data of 2 studies, while inference statistical

analysis, which is Pearson Correlation Analysis and Multiple Linear Regression (MLR), was used to analyze the data of the third objective of the studies.

As a result of the interview conducted with the informants, the researcher transcribed the collected data. Next, the researcher analyses the data obtained using thematic analysis. Then, the researcher determines the code or keyword contained in the respondent's answer and explains the code to the theme that coincides with the objective intention of this study. This coding process uses a deductive approach based on the ABC Model Theory by Eagly and Chaiken (1998). This is because the researcher describes the codes in the respondents' answers according to the themes under the ABC Model Theory. The researcher added the independent variable, technological development, following the study. Because of that, the researcher classified the 15 codes into three themes: technological development, knowledge, and attitude.

The results of the data obtained from the questionnaire, the researcher analyzed the findings using descriptive analysis to measure the level of technological development, knowledge, attitudes, and use of ChatGPT in the learning methods of Year 3 students at the IIUM Pagoh campus. The measurement scale used to analyse the results is intermediate data because the researcher uses a Likert scale in the questionnaire. The answer options for each question in sections B, C, D, and E contained in the questionnaire are given a number scale of 1 to 5 to make it easier for the researcher to analyze the results of the data quotation. The Likert scale of 1 to 5 represents responses of strongly disagree, disagree, neutral, agree, and strongly agree to the statements given in the questionnaire. To answer objective 2 of this study, the researcher determines the min or mean for each independent variable based on the findings analysed using descriptive analysis, i.e. the intermediate data scale. The min scale is determined using the Mean Score Guidelines by Mohd Asri Harun et al. (2016), for the researcher to know whether the min for each independent variable is at the least linkage, low, medium, or high level. The researchers used statistical inference to analyse the results to investigate the relationship between technological development, knowledge, attitudes, and the use of ChatGPT in the learning methods of Year 3 students at the IIUM Pagoh campus. The measurement scale used to analyze the findings of quantitative data of the third objective is Pearson Correlation Analysis and Multiple Regression (MLR). The purpose of using Pearson Correlation Analysis is to investigate the relationship between independent and dependent variables. Subsequently, the researcher also used Multiple Regression (MLR) analysis to determine the most significant independent variables. To investigate the relationship between independent variables and dependent variables, first, the researcher needs to determine the hypothesis of the study, and then compare the significant value (p) of the independent variables with the Cronbach Alpha (α) value, which is 0.05. Finally, the reviewer decides and concludes on whether the study hypothesis is accepted or rejected based on the significant value (p) for an independent variable.

RESULT AND DISCUSSION

QUALITATIVE

| Question | Respondents | Answers |
|--|-------------|--|
| 1. Can you share your experience using artificial intelligence (AI) like ChatGPT? You can tell us. | R1 | "I use ChatGPT purposely for Education " |
| | R2 | "I use ChatGPT because using this can shorten the duration of work" |
| | R3 | "You see ChatGPT is smart, I asked a question like that and he can give me a long answer like that." |
| | R4 | "I started to know this ChatGPT when I started studying the subject of Research Methodology" |
| | R5 | "Due to my motivation to know new things, I kept going to the website to try out the AI app" |

R1 has shown that his own experience of using ChatGPT is for education and learning. This answer shows that the respondent knows that ChatGPT has a huge impact on students because it tends to lead to good results. For R2 as well, the respondent **knows** that ChatGPT helps shorten the period of time to create work. The words "he can share a long answer" indicate that R3 had a positive experience while making assignments with the benefits of the ChatGPT application technology itself. Next, R4 already **knows** how to use the ChatGPT application when studying the subject of Research Methodology. For R5, the experience of using ChatGPT is due to his own **attitude** and motivation to know new things in line with the times.

| Question | Respondents | Answers |
|--|-------------|---|
| 2. In your view, does the progress of the ChatGPT app need to be monitored to ensure that its use is ethically compliant? Explain. | R1 | "We need to be aware of several factors as we know , not giving an improvement in terms of education, tending to take the easy path of copy and paste" |
| | R2 | "should be monitored because I don't think what ChatGPT gives is 100% correct" |
| | R3 | "It's important to monitor if people don't know how to use it because if people use it, the lecturer can check the plagiarism using Turnitin" |
| | R4 | "sometimes it must be monitored because it could be plagiarism " |
| | R5 | "In terms of the use of ChatGPT, I know ChatGPT needs to be monitored by the authority" |

Based on the table above, all respondents admitted they **knew** that the progress of the ChatGPT app needs to be monitored to ensure its use adheres to ethics by indicating four out of five responses under

the knowledge theme and only one under the attitude theme. For R1 the widespread use of ChatGPT causes users to take the easy path of copy and paste. R2 also said that the answers from ChatGPT are not all correct and trustworthy. He only took the idea, the rest of the search was continued on a more reliable site. The use of ChatGPT also needs to be monitored because based on the answer of R3 "if the lecturers are using the Turnitin, he can find out the search results are from his own ideas or completely search on ChatGPT or said R4 it could be plagiarism. For R5 the **knowledge** to monitor the use of ChatGPT applications is necessary. For example, supervision by the university in formal contexts such as examinations.

| Question | Respondents | Answers |
|---|-------------|---|
| 3. Please share your experience. Why do you use the ChatGPT app? Is it voluntary or encouraged by your tutor? | R1 | "I used it voluntarily - it was for speed " |
| | R2 | "Of course voluntarily. ChatGPT is very convenient because we only need to type the questions that we want and then they will come out with detailed answers." |
| | R3 | "From social media , TikTok accounts, but I also learned how to use the instructions all by myself" |
| | R4 | "from the lectures and we try to use it, we try to use it, it is indeed very easy and best " |
| | R5 | "was influenced by friends on social media who pointed out the advantages of using ChatGPT which can do the tasks quickly " |

R1's use of ChatGPT was voluntarily attributed to the support as the respondents stated that the use of ChatGPT is very fast. R2 pointed out the simplicity of ChatGPT itself when all you have to do is type the question and the answer details will come out putting the statement under the theme of technology and the user's attitude of using it voluntarily. R3 knows the existence of ChatGPT starts from social media, TikTok accounts, but how to use it is only self-learning. R4 also mentioned that ChatGPT's use was encouraged by the researchers and the results were very easy. The influence of being on social media made R5 start using the ChatGPT application.

| Question | Respondents | Answers |
|--|-------------|---|
| 4. In your opinion, how has the ChatGPT app helped you in your learning sessions? Explain. | R1 | "The use of Arabic in ChatGPT is appropriate . So instead of referring to random websites, it made the selection of ChatGPT more effective ." |
| | R2 | "I use ChatGPT to find ideas for preparing my case study" |
| | R3 | " Vocabulary ChatGPT is very good, so my assignment is better" |
| | R4 | "ChatGPT can also help a lot and it's simple and fast " |

| | |
|----|--|
| R5 | "I always use ChatGPT on my cell phone and laptop to prepare assignments" |
|----|--|

Based on this fourth item, there is a theme of ChatGPT **technology** demonstrated by R1 through the accuracy of ChatGPT which can communicate in Arabic and so on making the selection more effective. For R3 as well, the **technology** in ChatGPT is seen in the statement "Vocabulary ChatGPT is very good, so my assignment is better". While R4 stated that the ChatGPT technology "helps a lot and it's simple and fast". Meanwhile, the knowledge theme is illustrated by R2's answer "I use ChatGPT to find ideas for preparing my case study". The phrase looking for ideas to prepare the case study shows that the respondent knows the function of ChatGPT in learning. In addition, R5 showed her attitude that often uses ChatGPT with the answer "I always use ChatGPT on my cell phone and laptop to prepare assignments".

| Question 5 | Respondents | Answers |
|---|-------------|--|
| 5. Can using ChatGPT make you a more creative and confident person? Explain | R1 | "more confident because information from ChatGPT can prepare tasks quickly when the attitude of worry is indeed lacking" |
| | R2 | "ChatGPT makes me more creative because I can expand more and find additional ideas and so on" |
| | R3 | " I think my sentences have become better because my vocab is not good enough, so my assignment is better" |
| | R4 | "It makes me more creative and confident " |
| | R5 | "the references that we get when using ChatGPT should evaluate because I know that not all the things that ChatGPT gives are actually true" |

Based on this fifth item, the analysis results show four of the respondents' answers recognized that the use of ChatGPT application can make them more creative and confident. R1's statement shows that ChatGPT is convincing because it can prepare assignments quickly. For R2 ChatGPT makes him more creative because he can extend and find more additional ideas. R3 also agrees with the advantages of ChatGPT because ChatGPT makes "my sentences have become better". R5 despite feeling creative and convinced by ChatGPT, R5 argued that "**I know** that not all the things that ChatGPT gives are actually true".

| Question | Respondents | Answers |
|---|-------------|---|
| 6. How do you use the technological advances of the ChatGPT application in carrying | R1 | "I use chatGPT by putting keywords only " |
| | R2 | " I think it's easy to use this ChatGPT because we just need to open the web and just write what questions we want the answers and then we will get answers" |

out your assignments?
Explain.

| | |
|----|--|
| R3 | "Easy, these buttons and icons are easy to understand to find answers for my assignments" |
| R4 | "It's great for work, because it can use for all languages " |
| R5 | "To use ChatGPT, we need to know the correct use of the prompt" |

R1's statement believes that the keywords found on ChatGPT help carry out assignments while R4 also states that ChatGPT has the advantage of many languages and placing both statements under the theme of **technological** development. In this sixth item, there is also an **Attitude** theme that can be shown through R2's answer, which is "I **think** it's easy to use this ChatGPT because we just need to open the web and just write what questions we want the answers and then we will get answers". Furthermore, R3 "Easy, these buttons and icons are **easy** to understand to find answers for my assignments". R5 was seen to have knowledge of how to use ChatGPT in the statement "To use ChatGPT, we need to **know** the correct use of the prompt".

QUANTITATIVE

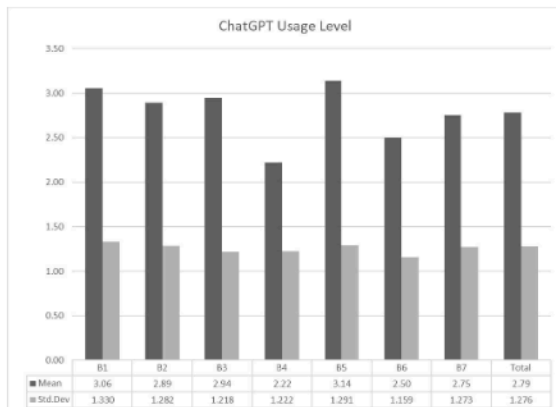


Figure 1

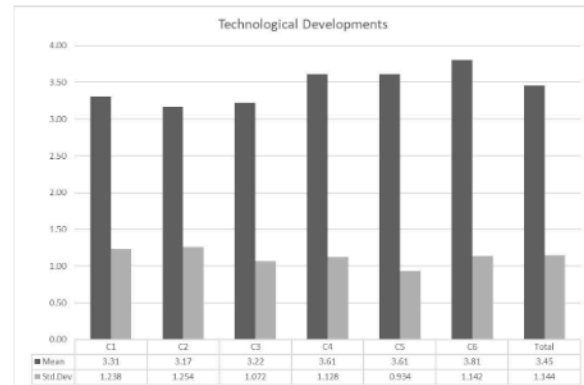


Figure 2

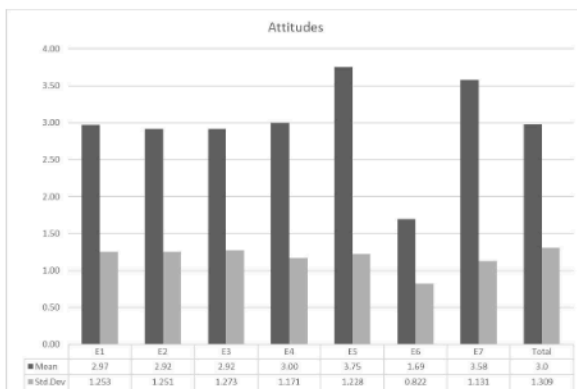


Figure 3

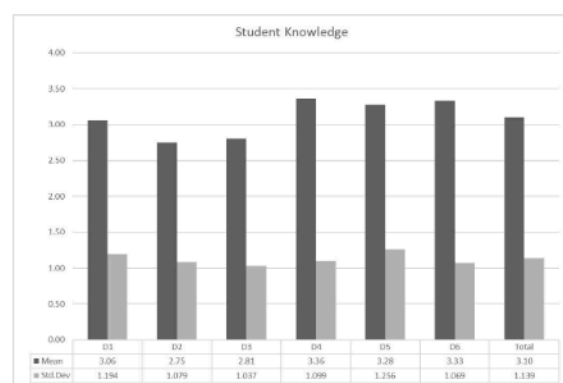


Figure 4

Based on Figure 1, the sum of the mean score of 2.79 indicates that, on average, according to Mohd Asri Hasan et. al. (2016). The respondents' level of perception towards the use of ChatGPT in learning methods is modest. Next, the analysis results show that the respondents agreed most with the statement "I will use ChatGPT to summarise and analyze learning materials" (M = 3.14, SP= 1.291). Whereas, the item that had the lowest mean score was "I would use ChatGPT to create exercises and examination preparation" (M = 2.22, SP = 1.222).

Figure 2 shows the mean score for measuring respondents' perceptions of the mean score for perceptions of technological development. Overall, the mean score value for the student's level of technological development is at a modest level, with a mean score of 3.45 and a total of 0.921 standard deviation values. Respondents agreed that ChatGPT technology is having a big impact on the education sector and other sectors, with the highest mean score of 3.81. While the lowest mean score was 3.17 for the statement on the need for ChatGPT access.

The overall mean score figure of 3 indicates the student's knowledge level is average. This can be seen through the mean score and the standard deviation (M = 3.10, SD = 0.875). Respondents agreed that statement D4 "I am aware of the function of using ChatGPT in learning methods" contributed to the highest mean score of 3.36 with a total standard deviation of 1.099. While item D2 "I can distinguish the use of each AI application" had the lowest mean score.(M = 2.75, SD = 1.079).

Lastly, figure 4 the mean score value for the student attitude level is at an average level 2.98 with a standard deviation value of 0.744. This result explains that the respondents strongly agreed that "I feel hesitant to use ChatGPT in making assignments because it might produce inaccurate results" (M = 3.75, SD = 1.228). Whereas respondents least agreed with the fact "I feel nervous if I cannot access ChatGPT while in the learning process" with the lowest mean score (M = 1.69, SD = 0.822).

Table 1. Pearson Correlation Analysis

| Variables | The Use of ChatGPT in Learning Methods | | |
|----------------------------|--|-------------|---------|
| | Pearson Coefficient (r) | Correlation | Value p |
| Technological developments | 0.691 | | p<0.05 |
| Knowledge | 0.704 | | p<0.05 |
| Attitudes | 0.658 | | p<0.05 |

All three relationships between the use of ChatGPT in learning methods and the variables of technological development, knowledge and attitude development were positive and statistically significant (p<0.05). The correlation coefficient (r) which ranges from 0.658 to 0.704, indicates an average level. These findings suggest that ChatGPT has the potential as a learning tool that parallels technological advancement, knowledge acquisition and positive attitudes towards technology-enhanced learning. Further research using multiple regression is able to explore the specific ways in which ChatGPT impacts learning outcomes and its efficacy in different learning contexts.

Table 2. Hypothesis

| | Hypothesis | Results |
|----|---|---------------------|
| H1 | There is a significant relationship between technological development and the use of ChatGPT in learning methods. | Not accepted |
| H2 | There is a significant relationship between knowledge and use of ChatGPT in learning methods. | Accepted |

DISCUSSION

The objective of the first study is a qualitative study, namely, to understand the use of ChatGPT in the learning method of Year 3 students at the International Islamic University Malaysia (IIUM) Pagoh Campus. This study has successfully analysed the themes of the respondents' answers. The three themes are technology development, knowledge, and attitude. As a result of the interview session with the respondents, the study has shown that the attitude theme has the highest influence in the use of ChatGPT in the Year 3 learning method at IIUM Pagoh Campus, followed by the knowledge theme and lastly the technology development theme. Some of the answer codes have been identified for the attitude theme, including, 'I feel happy', 'I feel easy', 'I always use', 'I feel confident', and 'I like'. Answer codes for the knowledge theme also include, 'I know', 'we need to know', 'use for assignment', and 'its use makes it easy'. The response codes for the last theme of technological development also consist of 'easy', 'fast', 'all languages are possible', 'appropriate', 'various', and 'appropriate'.

The study's second objective is a quantitative study, namely to measure the level of technological development, knowledge, attitudes, and the use of ChatGPT in the learning method of Year 3 students at the IIUM Pagoh Campus. The results have shown that all three independent variables, technological development, knowledge, and attitude, are related to the dependent variable, namely the use of ChatGPT in the learning method of Year 3 students at the IIUM Pagoh Campus. Based on the *Jadual Panduan Skor Min* by Mohd Asri Harun et al. (2016), these three independent variables are modest. The study has shown that the highest independent variable is technological development with a mean of 3.45, followed by knowledge with a mean of 3.10, and followed by attitude, with a mean of 2.98. This result coincides with the study conducted by Universiti Djuanda (n.d.) which states that the ability of the ChatGPT application which is the development of information and communication technology is that it can help in completing tasks such as essay writing, can maximize scientific work, such as reports, theses and so on. In addition, ChatGPT can also help in understanding difficult topics and enrich writing with the latest article writing suggestions or references. Some verses relate this technology in the Quran, one of which is in Surah Ar-Rahman Verse 33, as follows:

"O congregation of jinn and men, if you are able to penetrate (through) the corners of heaven and earth, then penetrate; you cannot penetrate except by force." (Ar-Rahman:33)

This verse shows that humans can acquire great abilities if science and technology are adequate. It is clear that the development of technology, for example, this ChatGPT application is indeed able to help and influence the method of learning today. However, according to the study of Aseel O. Ajlouni (2023), the study entitled *Students' Attitudes Towards Using ChatGPT as a Learning Tool: The Case of The University Of Jordan* used three independent variables, namely affective, behavioural and Cognitive in testing the behaviour of students in the university. The results of the study have shown that the behavioural independent variable has the highest mean compared to the other two, with a mean of 3.81, followed by cognitive, with a mean of 3.77, and effective, with a mean of 3.65. These three variables have been categorised as high levels according to the *Jadual Panduan Skor Min*. A notable comparison that can be seen is in terms of the min score level i.e. the min score for the study income, all three are categorized as simple. However, the min score value of the study of Aseel O. Ajlouni (2023) has been categorized as affective, simple, and the other two high, which are behavioral and cognitive.

The third objective of the study is a quantitative study, which is to investigate the relationship between technological development, knowledge, and attitude with the use of ChatGPT in the learning method of

Year 3 students at the IIUM Pagoh Campus. The results of the study have found that based on Pearson Correlation Analysis, these three independent variables, technological development, knowledge and attitude have been measured together and have positive results, interconnected with the standard variable, the use of ChatGPT in the learning method of Year 3 students at the IIUM Pagoh Campus. For the Multiple Regression, the findings also have shown the independent variable, knowledge has the most significant relationship compared to the other two independent variables, which are technological development and attitude.

CONCLUSION

Based on the study carried out, there are several implications and suggestions for improvement that can be highlighted. Among the implications or effects of this study on students is the need to encourage the use of artificial intelligence like ChatGPT in the learning methods of students today. By looking at the current technology that is growing rapidly, students need to take this opportunity to improve and improve the results of their learning assignments. According to Dr. Azlan Muharam (2023), there are three positive impacts of artificial intelligence (AI) that can awaken the intellect and potential of students in the context of education.

Firstly, artificial intelligence (AI) seeks to present information and data more clearly and reliably. As a fact, there are various artificial intelligences (AI) that facilitate the presentation of data in graphical form such as Tome and Dall-E-2. Because of this, the use of artificial intelligence (AI) will help students obtain more precise and effective data information. On the other hand, this does not bring as much benefit to all students, especially the Technical and Vocational Education and Training (TVET) group of students who focus more on physical technical skills, however, this good additional knowledge and skills should not be marginalized alone in the face of endless future challenges.

Secondly, artificial intelligence (AI) is a tool for facilitating interaction between students and researchers. Whereas in the past, students needed to wait for a specific period for a response when they did not understand something, now with artificial intelligence (AI), students no longer have to wait for long periods, as a tool for facilitating interaction between students and their teachers. Tutorial aids such as ChatGPT, Chatbots, and tutors have created a strong collaborative environment and helped in forming an interactive communication field between students and tutors. The teachers or lecturers can also assess the student's level of understanding and intervene in their teaching and learning process.

Thirdly, in the digital age with the proliferation of academic and casual videos, this trend is seen as a positive turn towards the emergence of students from the creative aspect. Nowadays, it is undeniable that students have access to platforms that facilitate the production of quality videos. This not only makes it easier for the students to produce videos of the assignments given, but it will also contribute to the digitizing skills of the students to a better level or more proudly to a professional level. In addition, this can enrich digital access more effectively, the skills gained can also be brought outside the learning session for example, in the working life or the search for more savings using the existing skills.

According to Dr. Nurul Ihsaniah Omar (2023), education is the main support for the development of society and the economy of a country. However, traditional education systems often face various challenges, such as gaps in the quality and accessibility of education, limited resources, and challenges in handling changing times. Furthermore, given these prevailing problems, the use of artificial intelligence (AI) is one of the efforts to improve the quality of education in the country. The extraordinary technological advances of today can interpret the potential and latent skills in students and teachers towards a more effective teaching and learning process. Thus, there are several advantages of this artificial

intelligence (AI) which has been expressed by Dr. Nurul Ihsaniah Omar (2023) which can provide such a positive transformation to the country's education.

Among them is creating a personalized learning environment, where AI-powered systems can analyze individual learner data, identify strengths and weaknesses, and tailor learning experiences accordingly. This approach can help students in choosing and assessing learning methods or styles according to the suitability of their learning stage. This is because this advanced technology can interpret more precise data on the patterns that are more effective on one's learning. With advanced data analysis, artificial intelligence (AI) can identify the learning needs and preferences of each individual. This feature can increase the motivation of students to learn and carry out their assignments. Consequently, these students will be more energized in their daily learning routine resulting in better academic results.

Next, artificial intelligence (AI) can support educators by automating administrative tasks such as grading assessments or generating reports. In conjunction with that, this will be able to reduce the period of routine tasks of educators. Educators will then have more time to focus on designing effective learning techniques according to the relevance of the students during the learning and teaching process. This plan can provide opportunities for instructors to assess their students more comprehensively. Proper planning must be established in line with current trends so that these students can remain relevant in the world of work and market needs after they have completed their studies at any eligible institution.

Every technology developed must have a price that needs to be paid based on the positive and negative impacts on its users. The obvious negative effect that can be seen is that creative destruction occurs, which will cause humans to be increasingly lazy to think and depend on machines (Dr. Azlan Muharam, 2023). Thus, the rapidity of artificial intelligence (AI) technology demands the wisdom of humans and related agencies to control, monitor, and supervise its use. AI technology is just a tool to help smoothen and enhance the process of delivering knowledge to students. It is up to the learner to assess and select the available technological resources to be utilized in their learning process. Aiman Faiz and Iman Kurniawaty (2023) have discussed the application of values and ethics in the use of ChatGPT for learning purposes by instilling moral knowing in developing an appropriate learning style. Because of that, their results have shown that the practice of applying values and ethics in the use of ChatGPT needs to be monitored by educators. Hence, some of the suggestions for follow-up studies that could be carried out is to examine the level of dependency of the students on the use of ChatGPT in the learning method. This idea is mainly to measure the extent to which the behavior of the dependency level of these students is categorized as a violation of ethical values.

Overall, this study has managed to answer the three objectives that have been set. It has also succeeded in formulating the problem statement in detail. Therefore, this study is expected to be able to be a reference and guide to other reviewers in the future.

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