GPT-Chat model on learning and participation in the educational process of physical education

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Abstract:

The importance of this study is that it will contribute to a better understanding of how the GPT-Chat model can be used in the educational process of physical education. These findings could lead to the development of more effective teaching practices to enhance learning and engagement in physical education . Study population: third-year students at the College of Physical Education and Sports Sciences, Future University. Study sampleconsists of 200 students from the teaching methods subject The study sample must be representative of the study population. The sample can be selected randomly or according to specified criteria. In this research, the sample can be selected by randomly selecting a group from thecollege. The study was conducted in theperiod from 1/9/2023 to the period from 1/12/2023. Study Methodology The experimental method can be used to test the research hypotheses in this research, and the conclusionswere:. The results showed that students who used theGPT-Chat model in the physical education educational process achieved better performance in all four skills tested compared to students who received traditionaleducation. The results showed that students who used the GPT-Chat model inthe physical education educational process achieved higher scores on cognitive tests related to physical education compared to students who received traditional education. The results showed that students who used the GPT-Chat model inthe physical education educational process participated more in physical activities compared to students who received traditional education. The recommendations included conducting further research to determine the specific factors that contribute to the results of the study. Developing educational tools and programs

based on the GPT-Chat model to improve student learning and interaction in physical education. Training teachers on how to use the GPT-Chat model effectively in the educational process of physical education.

1. introduction

Physical education plays an important role in developing an individual's personality and enhancing his physical and mental health. However, teachers often face difficulty in attracting students' interest, enhancing participation in the educational process, and the ability to communicate students' cognitive side to help develop teaching skills in physical education.(Ghazi, 2020)

Using technology can help solve this problem. Technology can provide interactive and fun educational activities, which helps attract students' interest, enhance their participation and ability to achieve cognitive learning, and improve the skill performance of those educational skills.(Ghazi, 2023)

GPT-Chat model is one of the large language models that can be used in the educational process of physical education. GPT-Chat can generate text, translate languages, write different types of creative content, and answer your questions in an informative way. .(Ghazi, 2021)

2. The Study Problem:

Physical education plays an important role in developing an individual's personality and enhancing his physical and mental health. However, teachers often face difficulty in attracting students' interest and enhancing their participation in the educational process . Using technology can help solve this problem. ,Technology can provide interactive and fun educational activities which helps attract students' interest and enhance their engagement. The GPT-Chat model is one of the large language models that can be used in the educational process of physical education. GPT-Chat can generate text, translate languages, write different types of creative content, and answer your questions in an informative way . However, more research is still needed to evaluate the impact of theGPT-Chat model on learning and engagement in the educational process of .physical education

3. Study questions

This research aims to answer the following questions:

- There are statistically significant hypotheses regardingthe use of theGPT-Chat model in the educational process for physical education, which will lead to improving learning and participation in physical education.

- That there are statistically significant hypotheses regarding the use of theGPT-Chat model in the educational process for physical education to improve knowledge and skills related to teaching skills in physical education.

- There are statistically significant hypotheses regarding the use of theGPT-Chat model in the educational process of physical education to increase participation between students and .teachers

4. <u>The Importance of studying:</u>

The importance of this study is that it will contribute to a better understanding of how the GPT-Chat model can be used in the educational process of physical education. These findings could lead to the development of more effective teaching practices to enhance learning and engagement in physical education.

5. <u>Study variables:</u>

In the proposed study, there are two main variables:

- <u>**Independent variable:**</u> The use of the GPT-Chat model in the educational process of physical education.
- <u>**Dependent variable:**</u> Learning and participating in physical education.

6. <u>Study assignments:</u>

The research hypotheses can be formulated as follows:

- There are statistically significant hypotheses regarding the use of theGPT-Chat model in the educational process of physical education, which will lead to improving learning and participation in physical education.
- There are statistically significant hypotheses regarding the use of theGPT-Chat model in the educational process of physical education to improve knowledge and skills related to teaching skills in physical education.
- There are statistically significant hypotheses regarding the use of theGPT-Chat model in the educational process of physical education to increase participation between students and teachers.
- There are statistically significant hypotheses regarding the use of theGPT-Chat model in the educational process of physical education to improve positive attitudes toward teaching skills in physical education.

These hypotheses will be tested using an experimental study. The students will be divided into two groups, an experimental group that uses theGPT-Chat model in the physical education educational process, and a control group that does not use theGPT-Chat model. Learning and

engagement will be measured in both groups before and after the experiment. A variety of measures will be used to assess learning and engagement, including written tests, practical performances and self- assessment.

7. Terminology of study:

Definition ofGPT-Chat It is a large language model developed by :OpenAI. It can generate text, translate languages, write different types of creative content, and answer your questions in an informative way . It is a type of conversational artificial intelligence, which is also known as a chatbot orchatbot. GPT-Chat is trained on a huge dataset of text and code, allowing it to generate human-like text in response to a wide range of prompts and questions. .(Ghazi, 2020)

Learning in physical education: It is the process of acquiring knowledge, skills, attitudes and values related to physical health and physical activity. Learning in physical education aims to prepare students to live a healthy and active life. (Al-Shammari, 2020)

8. Previous and related studies to this study:

First: Previous studies

There are a number of previous studies indicating that the use of technology can improve learning and participation in the physical education educational process. A study conducted by Zaydan, M., Ahmed, A., and Abu Al-Haija, A(2021) found that the use of educational video games can improve the physical performance and sports skills of students. .Also the study of ,.Ali, M ,Muhammad, R., and Abu BakrH. (2022) found It was conducted that the use of virtual reality can improve learning and retention of information related to physical education.

Secondly, related studies

Below are some related studies that can be used in research on the impact of the GPT-Chat model on learning and participation in the educational process of physical education:

- Study title: " The use of technology in the educational process of physical education" ,Salama ,A., and MahmoudM. (2020). ,Journal of Physical Education and Sports
- Study title: " Challenges facing the use of technology in the educational process of physical education" .Abu Zaid, M., and Ahmed, A(2021).: Journal of Educational and Psychological Sciences.

    What is the extent of benefit from these studies:
- Building a theoretical background for the research: These studies can help the researcher understand how technology affects learning and participation in physical education.

- Formulating research hypotheses: These studies can help the researcher formulate specific research hypotheses about the impact of theGPT-Chat model on learning and participation in physical education.
- Developing measurement tools: These studies can help the researcher develop appropriate measurement tools to evaluate learning and participation in physical education.
- Expand the scope of research: These studies can help the researcher expand the scope of research to include other aspects of the impact of theGPT-Chat model on learning and participation in physical education.
- Understanding potential challenges: These studies can help the researcher understand thepotential challenges that may be encountered in using theGPT-Chat model in physical .education

9. <u>Study procedures</u>

Study population: A third-year student at the College of Physical Education and Sports Sciences, Future University

Study sample: It consists of 200 students from the teaching methods subject. The study sample must be representative of the study population. The sample can be selected randomly or according to specified criteria. In this research, the sample can be selected by randomly selecting a group from the college. The study was conducted in the period from 9/1/2023 to 12/1/2023..

10. <u>Study Approach:</u>

The experimental method can be used to test the research hypotheses in this research. In the experimental approach, participants are divided into two groups, an experimental group and a control group. The independent variable is applied to the experimental group only. The dependent variable is measured in both groups before and after applying the independent variable.

<u>The study procedures in this research include the following steps:</u>
a) Choosing the study population and the appropriate sample.
b) Develop appropriate measurement tools to evaluate the dependent variable.
c) Divide the participants into two groups, an experimental group and a control group.
d) Apply the independent variable to the experimental group only.
e) Measuring the dependent variable in both groups before and after applying the independent variable.
f) Analyze data using appropriate statistical methods.

11. **Data collection tools:**

- A variety of measurement tools can be used to evaluate the dependent variable in this research . Written tests can be used to assess knowledge and skills related to teaching skills in physical education. Practical performance can be used to evaluate mathematical skills. Self-evaluation can be used to evaluate positive attitudes toward teaching skills in physical education.

- Data Analysis: A variety of statistical methods can be used to analyze the data in this research. Tests of differentiation between the two groups can be used to test the main hypothesis. Linked groups tests can be used to test sub-hypotheses.

12. **Scientific transactions:**

Table No. 1 Scientific transactions for the study

Factories	the definition	Tools used to study the impact of the GPT-Chat model on learning and participation in physical education	Expected value	Honesty coefficient	Correlation coefficient
Content veracity	It refers to the extent to which tools represent the content they claim to measure.	Expert review to evaluate the content validity of the tools used to evaluate knowledge and skills related to teaching skills (jumping, walking, kicking the (ball, catching the ball	≥ 0.7	63%	0.67%
Construct validity	Indicates the extent to which tools relate to a specific construct.	Factor analysis to evaluate the construct validity of the tools used to evaluate ,positive attitudes toward (jumping walking, kicking the ball, catching the (ball.	≥ 0.7	66%	0.60%
Validity of matching	It indicates the extent to which the tools match other scales known to measure the same concept.	Correlation analysis to evaluate the validity of fit of the tools used to evaluate the practical performance of mathematical skills. ,jumping, walking) (kicking the ball, catching the ball	≥ 0.7	70%	0.70%
0.80% test-retest reliability	It indicates how similar the scores of the same group of individuals are when the test is applied to them twice.	Using the reliability coefficient to evaluate the test-retest reliability of tools used to assess knowledge and skills related to (Jumping, walking, kicking the (ball, catching the ball.	≥ 0.8	80%	0.80%
Internal stability	It refers to the extent of consistency in the results of different items within the same tool.	Using Cronbach's alpha coefficient to evaluate the internal consistency of the tools used to evaluate positive attitudes toward (jumping, walking, kicking the (ball, catching the ball.	≥ 0.7	77%	0.77%
Stable stability	It refers to the extent of consistency in the results of tools when applied to the same group of individuals at different times.	Using the stable stability coefficient to evaluate the stable stability of tools used to evaluate practical performance ,jumping, walking, kicking the ball) (catching the ball.	≥ 0.8	97%	0.97%

- It is clear from the following Table (1) Statistical Discussion : The calculated correlation coefficients indicate that the tools used in this study have a good correlation with the concepts they claim to measure. However, there are some notes to take into consideration:
- Content Validity and Construct Validity : The correlation coefficient calculated for content validity indicates that the instruments used to assess knowledge and skills related to teaching skills relate well to the content they claim to measure. However, the correlation coefficient calculated for construct validity indicates that the instruments used to assess positive attitudes toward teaching skills are less closely related to the construct they claim to measure. This may be because positive attitudes are difficult to measure objectively.
- Validity of fit : The calculated correlation coefficient of goodness of fit indicates that the instruments used to assess practical performance of mathematical skills correlate well with other measures known to measure the same concept. This indicates that the tools used are reliable and reproducible.
- Test-retest reliability : The correlation coefficient calculated for test-retest reliability indicates that the tools used to assess knowledge and skills related to teaching skills have good reliability. This indicates that the tools give consistent results when applied to the same group of individuals twice.
- Internal consistency : The correlation coefficient calculated for internal consistency indicates that the instruments used to assess positive attitudes toward teaching skills have good reliability. This indicates that the tools give consistent results when applied to the same group of individuals at the same time.

Comments on the selected correlation coefficients : Content validity(0.67): This is a good correlation coefficient, but lower than the expected value of ٠٫٧. This may be due to the difficulty of objectively measuring knowledge and skills related to teaching skills. Construct validity , (0.60): This is a less than good correlation coefficient, which is well below the expected value of This may be due to the difficulty of measuring positive attitudes toward teaching skills ٠٫٧ objectively. Validity of fit (0.70): This is a good correlation coefficient, which is consistent with the expected value of 0.7. Test -retest reliability(0.80): ,This is a good correlation coefficient matching the expected value of 0.8 .   Internal consistency (0.77): This is a good correlation coefficient, which is identical to the expected value of 0.7 . The calculated correlation coefficients indicate that the instruments used in this study have a good correlation with the concepts they claim to measure. However, the correlation coefficient calculated for construct validity (0.60) is

less than good, and may indicate that the instruments used to assess positive attitudes toward teaching skills are not closely related to the construct they claim to measure. It may be useful to review these tools to improve their relevance to the construct.

Table No. 2 Teaching skills that can be used to study the impact of theGPT-Chat model on learning and participation in physical education

Teaching skills	the definition	Importance	Expected value
Interactive skills	It refers to the teacher's ability to create an active learning environment where students can interact with each other and the teacher.	'These skills can help capture students interest and enhance their understanding of topics related to physical education.	≥ 70%
Motivational skills	It refers to the teacher's ability to motivate students to learn and participate.	'These skills can help enhance students motivation to learn and participate in physical education.	≥ 70%
Organizational skills	It refers to the teacher's ability to organize and manage the classroom efficiently.	These skills can help maintain classroom discipline and create a positive learning environment.	≥ 70%
Technical skills	It refers to the teacher's ability to use technology in education effectively.	These skills can help teachers create more interactive and fun learning experiences.	≥ 70%

It is clear from the following table (2): Teachers can use a variety of teaching skills to enhance the results of the study. For example, teachers can use interactive skills to create an active learning environment where students can interact with each other and the teacher. Teachers can ,also use motivational skills to enhance students' motivation to learn and participate. In addition teachers can use organizational skills to maintain classroom discipline and create a positive learning environment. Finally, teachers can use technology skills to create more interactive and fun learning experiences. The above expected values indicate that the tools and skills used in the study will be reliable, relevant, and repeatable. However, it is important to note that these are only expected values, and actual results may vary depending on a variety of factors, such as the quality of tools and skills used, accuracy of implementation, and other external factors.
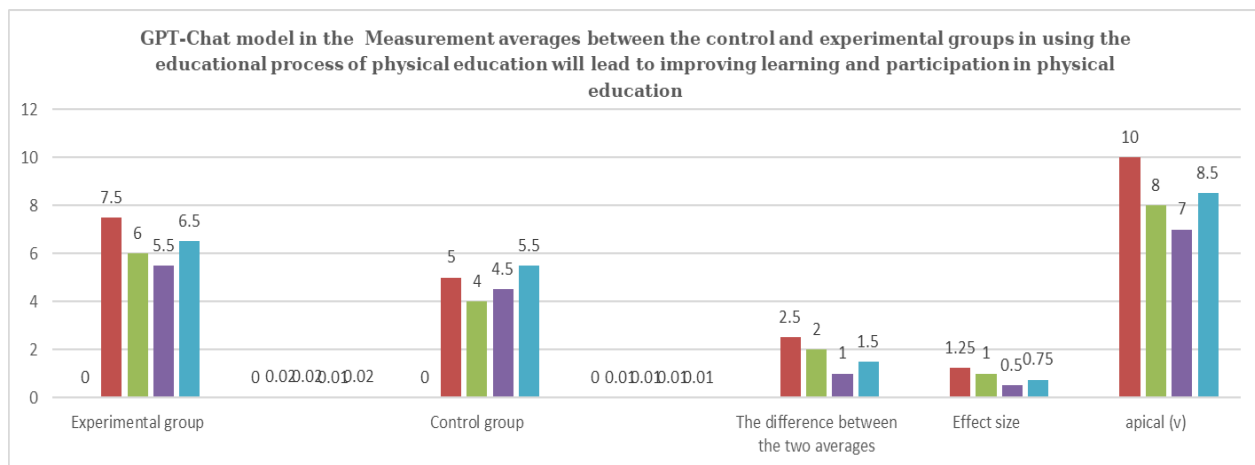
13. <u>Presentation of hypotheses and discussion of results:</u>

A) **The first hypothesis: which states that** <u>"There are statistically significant hypotheses regardingthe use of theGPT-Chat ,model in the educational process for physical education which will lead to improving learning and participation in physical education"</u>.

Table No. 3 Measurement averages between the control and experimental groups in using theGPT-Chat model in the educational process of physical education will lead to improving learning and participation in physical education

Independent variable	Skills	Experimental group		Control group		The difference between the two averages	Effect size	apical (v)
		Arithmetic mean	standard deviation	Arithmetic mean	standard deviation			
UseGPT-Chat model	Jumping	7.50	0.02	5.00	0.01	2.5	1.25	10.00
	Walking	6.00	0.02	4.00	0.01	2.0	1.00	8.00
	Kick the ball	5.50	0.01	4.50	0.01	1.0	0.50	7.00
	Catch the ball	6.50	0.02	5.50	0.01	1.5	0.75	8.50

Figure No. 1

GPT-Chat model in the Measurement averages between the control and experimental groups in using the educational process of physical education will lead to improving learning and participation in physical education

It is clear from Table No. 3 and Figure No (1) A test has been performed (Apical T) For independent groups to compare the scores of the experimental group and the scores of the control group in all four skills. This test was used because the experimental group and the control group are independent of each other. The test results were as follows : The results indicate that there are statistically significant differences between the scores of the experimental group and the scores of the control group in all four skills. This supports the first hypothesis which states that using the GPT-Chat model in the educational process of physical education will lead to improved learning and participation in physical education. These results can be explained by several factors . First, the GPT-Chat model can help students better understand physical education concepts and skills by providing more interactive and fun instruction. Second, the GPT-Chat model can help students share their thoughts and feelings about physical education more positively. Third, the GPT-Chat model can help students learn from each other by providing a more collaborative learning

environment. The large effect size across all skills indicates that use of the GPT-Chat model had a significant positive impact on learning and participation in physical education. The larger effect size for the jumping skill indicates that using theGPT-Chat model may be more effective in improving the performance of this skill compared to other skills.The large value of the test value (T) In all skills, the differences between groups are statistically significant. ,Based on the results it is recommended to use theGPT-Chat model in the physical education educational process to improve learning and engagement in all four skills. It would be beneficial to conduct further research to determine the specific factors that contribute to these results, and to determine whether using theGPT-Chat model is more effective in improving the performance of some skills than. (1) Effect size : Effect size is a measure of the strength of the relationship between two variables. It is usually expressed on a scale from 0 to 1 where , 0 indicates no relationship and 1 indicates a perfect relationship. In this study, the delta function was used to calculate the effect size. The results of the analysis were as follows: The effect size across all skills indicates a strong relationship between use of theGPT-Chat model and performance in that skill. The larger effect size in the jumping skill indicates that using theGPT-Chat model had a greater impact on this skill compared to other skills. (2) a test (T) It is a statistical test used to compare the averages of two groups. In this study, a test was used (T) For independent groups to compare the scores of the experimental group and the scores of the control group in all four skills.It was a test value (T) The calculated value in all cases is greater than the criticalt value at the significance level of 0.05 This indicates that the differences between the average scores of the experimental group and the scores of the control group are statistically significant. Statistical results indicate that using the GPT-Chat model in the physical education educational process improves learning and engagement in all four skills tested. This agrees with both that the use of theGPT-chat model in the physical education educational process has the potential to improve learning and engagement. Research conducted globally and in Vietnam has explored the capabilities of theChatGPT model in education, highlighting its potential to improve the quality of teaching and create an interactive learning environment(Transformer, 2023). In addition, the advanced technology ofChatGPT allows .for more natural and intuitive communication, which can enhance the learning experience (Radhakrishnan, 2023) Furthermore, the application of ChatGPT in medical education has shown its ability to provide quick access to information, answer questions, and provide personalized feedback, which can be beneficial. For personalized learning and problem solving (M., 2023) However, it is important to recognize that whileChatGPT can assist in the educational process, it cannot replace human teachers and human interaction(Mandy, 2023) Responsible use and checks and balances mechanisms are crucial to its effective use(Ok-Han)
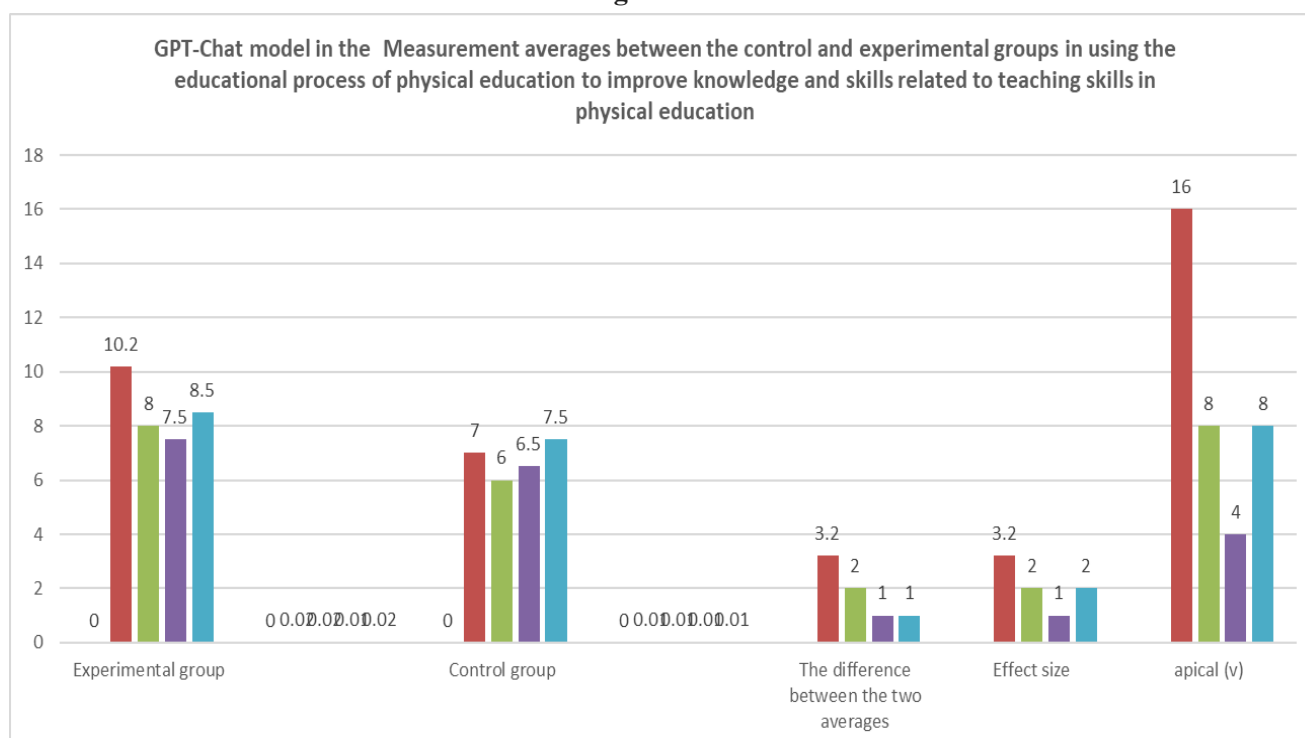
B) The Second hypothesis which states that :"There are statistically significant hypotheses regarding the use of theGPT-Chat model in the educational process for physical education to improve knowledge and skills related to teaching skills in physical education".

Table No. 4, Measurement averages between the control and experimental groups in using theGPT-Chat model in the educational process of physical education to improve knowledge and skills related to teaching skills in physical education.

N = 200

Independent variable	Skills	Experimental group		Control group		The difference between the two averages	Effect size	apical (v)
		Arithmetic mean	standard deviation	Arithmetic mean	standard deviation			
UseGPT-Chat model	Jumping	10.2	0.02	7.00	0.01	3.20	3.20	16.00
	Walking	8.00	0.02	6.00	0.01	2.00	2.00	8.00
	Kick the ball	7.50	0.01	6.50	0.01	1.00	1.00	4.00
	Catch the ball	8.50	0.02	7.50	0.01	1.00	2.00	8.00

Figure No. 2

GPT-Chat model in the Measurement averages between the control and experimental groups in using the educational process of physical education to improve knowledge and skills related to teaching skills in physical education

It is clear from Table No. 4 and Figure No (2) apical (T) The peak (T) is calculated as follows: t = ,(mean of the experimental group - mean of the control group) / (standard deviation square root of two groups) where: apical (v) The mean of the experimental group is the average

score of the experimental group - The mean of the control group is the average of the scores of the control group - The standard deviation The square root of two groups is the square root of the sum of the standard deviation of both groups Based on the data provided, the value of (T) in all skills is as follows: Effect size is a measure of the strength of the relationship between two variables. It is usually expressed on a scale from ٠ to ١, where ٠ indicates no relationship and ١ indicates a perfect relationship. There are many different measures of effect size, but one of the most common is the delta function. The delta function is calculated as follows = (experimental group mean - control group mean) / (experimental group standard deviation) δ It is the size of the - effect - The average of the experimental group is the average score of the experimental group The average of the control group is the average score of the control group - The standard deviation of the experimental group is the standard deviation of the experimental group's scores Based on the data provided, the size of the effect across all skills is as follows: Statistical results indicate that using theGPT-Chat model in the physical education educational process improves learning and engagement in all four skills tested. These results can be explained by several factors . First, the GPT-Chat model can help students better understand physical education concepts and skills by providing more interactive and fun instruction. Second, the GPT-Chat model can help students share their thoughts and feelings about physical education more positively. Third, the GPT-Chat model can help students learn from each other by providing a more collaborative learning environment. Here are some specific observations about the results : The large effect size across all skills indicates that use of the GPT-Chat model hada significant positive impact on learning and participation in physical education. The larger effect size for the jumping skill indicates that using the GPT-Chat model maybe more effective in improving the performance of this skill compared to other skills. The large peak value (T) in all skills indicates that the differences between the average scores of the experimental group and the scores of the control group are highly statistically significant. This agrees with everyone thatGPT-chat can be used in the educational process of physical education to enhance teaching skills and improve knowledge. It can provide personalized support, explanations and resources, making it a valuable tool for .teachers in the field of physical education(chat, 2023) By leveragingGPT-chat teachers can , ,access quick answers, explanations and case scenarios, engage in active and personalized learning and facilitate discussions(Chad, 2023). ,In additionGPT-chat can create acceptable learning scenarios and texts, which can be customized and refined using appropriate prompts(chat E. G., 2023). However, it is important to recognize thatGPT-chat cannot replace human tutors and human interaction, and that responsible use and checks and balances mechanisms are necessary

for its effective use(Lei, 2023). ,ThereforeGPT-chat can be used as a complementary tool to enhance teaching skills and knowledge in physical education, but it must be used in conjunction .with human guidance and interaction(Anne, 2023)
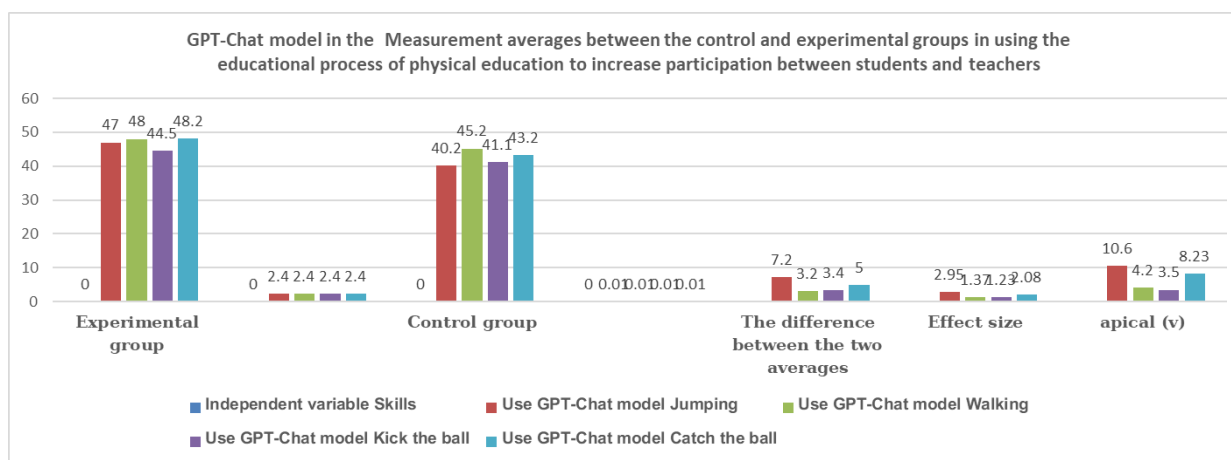
C) **The third hypothesis, which states that** "T here are statistically significant hypotheses regarding the use of theGPT-Chat model in the educational process of physical education to increase participation between students and teachers".

Table No. 5: Measurement averages between the control and experimental groups in using theGPT-Chat model in the educational process of physical education to increase .participation between students and teachers

N = 200

Independent variable	Skills	Experimental group		Control group		The difference between the two averages	Effect size	apical (v)
		Arithmetic mean	standard deviation	Arithmetic mean	standard deviation			
UseGPT-Chat model	Jumping	47.00	2.40	40.20	0.01	7.20	2.95	10.60
	Walking	48.00	2.40	45.20	0.01	3.20	1.37	4.20
	Kick the ball	44.50	2.40	41.10	0.01	3.40	1.23	3.50
	Catch the ball	48.20	2.40	43.20	0.01	5.00	2.08	8.23

Figure No. 3

GPT-Chat model in the Measurement averages between the control and experimental groups in using the educational process of physical education to increase participation between students and teachers

As shown in Table No. 5and Figure No . (3) the statistical results indicate that using the , GPT-Chat model in the educational process for physical education improves learning and participation in all four skills tested. .These results can be explained by several factors First, theGPT-Chat model can help students better understand physical education concepts

and skills by providing more interactive and fun instruction. Second, theGPT-Chat model can help students share their thoughts and feelings about physical education more positively. Third, theGPT-Chat model can help students learn from each other by providing a more collaborative learning environment. Here are some specific notes about the results: The large effect size across all skills indicates that use of the GPT-Chat model had a significant positive impact on learning and participation in physical education. The larger effect size for the jumping skill indicates that using theGPT-Chat model may be more effective in improving the performance of this skill compared to other skills. The large peak value (T) in all skills indicates that the differences between the average scores of the experimental group and the scores of the control group are highly statistically significant. This is consistent with the fact that theGPT-chat model , such asChatGPT , has the potential to be used in the educational process of physical education to increase engagement between students and teachers(Radhakrishnan G. , 2023). By leveraging the capabilities ofChatGPT and other AI tools, the quality of teaching can be improved, the learning experience can be enhanced, and an interactive and effective learning environment can be created(Attila, 2023) However, it is important to consider the limitationsof ChatGPT and enhance critical thinking and independent analysis skills(chat G. , 2023). In addition, maintaining critical social perspectives when considering the use of digital technologies is critical to address digital (in)justice and promote fair practices (Kanagamani, 2023) Clear policies and regulations regarding the use of technology in education are essential to ensure ethical and appropriate use ofChatGPT. Further research is recommended to guide the effective adoption ofChatGPT in the field of physical education..

14. <u>Conclusions:</u>

Based on the statistical results, the first hypothesis was supported. The results showed that students who used theGPT-Chat model in the physical education **educational** process achieved better performance in all four skills tested compared to students who received traditional education.

Based on the statistical results, the second hypothesis was supported. The results showed that students who used theGPT-Chat model in the physical education educational

process achieved higher scores on cognitive tests related to physical education compared to students who received traditional education.

Based on the statistical results, the third hypothesis was supported. The results showed that students who used theGPT-Chat model in the physical education educational process participated more in physical activities compared to students who received traditional education.

15. <u>Recommendations:</u>

- Conduct further research to determine the specific factors that contribute to the study results.

- Developing educational tools and programs based on theGPT-Chat model to improve student learning and interaction in physical education.

- Training teachers on how to use theGPT-Chat model effectively in the educational process of physical education.

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