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The Influence of Information Quality on Learning Satisfaction With The Use of Chatgpt as A Mediating Variable

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Abstract: Digital transformation in education has significantly changed how students access information and achieve learning satisfaction. One of the most impactful innovations is the use of artificial intelligence, particularly ChatGPT, to support the learning process. This study aims to examine the effect of information quality on learning satisfaction with the use of ChatGPT as a mediating variable. The research was conducted on undergraduate students of the Faculty of Teacher Training and Education at Universitas Muhammadiyah Surakarta in the 2024 academic year who had used ChatGPT in academic activities. A total of 100 respondents were selected using purposive sampling. The data analysis method employed was Partial Least Squares Structural Equation Modeling (PLS,SEM) using SmartPLS software. The results indicate that information quality significantly influences learning satisfaction, both directly and through the mediation of ChatGPT usage. Additionally, information quality has a strong and significant effect on the intensity of ChatGPT use, and ChatGPT usage itself contributes positively to students' learning satisfaction. However, the evaluation of the measurement model reveals that discriminant validity and overall model fit have not been fully achieved, suggesting the need for model refinement in future research. This study contributes to understanding the integration of AI,based technologies in education and highlights the importance of enhancing information quality to foster a more adaptive and effective learning.

Keywords: ChatGPT, Digital Learning, Information Quality, Learning Satisfaction, Mediation.

INTRODUCTION

Because technology is changing so quickly, digital learning is now an important aspect of modern education. With the growth of e-learning platforms, educational apps, and other digital resources, both students and teachers now have more access to learning materials that are flexible and interactive. Digital technology makes individualized learning possible, letting students learn at their own pace and depending on their own requirements. Teachers can also use analytic tools to keep better track of how well their students are doing (Haleem et al., 2022). Digital learning has also made it possible for those in rural locations who didn't have access to traditional methods to learn, thereby making the teaching and learning process more inclusive. Educational technology is always changing, which leads to new and better ways to teach. More and more people are using e-learning and remote learning, thanks to systems like Google

Classroom, Coursera, and Moodle. Gamification and immersive tools like Augmented Reality (AR) and Virtual Reality (VR) also make studying more fun by providing interactive simulations that help students understand difficult ideas better (Kalyani, 2024). The Covid-19 pandemic sped up the use of these tools, changing the way people think about education from traditional classroom models to more flexible, digital-first ones. Hybrid learning, which combines online and in-person approaches, is becoming more popular since it combines the best parts of both (Haleem et al., 2022).

Artificial intelligence (AI) is one of the most important new technologies in education since it has made learning much more successful in many ways. AI makes individualized learning possible by adapting lessons to each student's strengths and limitations. It also helps teachers look at student performance in more detail. Virtual tutors and AI-powered chatbots can help kids in real time, so they can get answers right away without having to wait for their teacher to help them (Kalyani, 2024). AI also helps automate assessment processes, such AI-assisted essay grading with Natural Language Processing (NLP) and prediction algorithms that find pupils who are likely to fall behind (Hardiansyah et al., 2024).

AI is becoming an important part of making the education system more open, efficient, and effective since it can analyze data and give personalized learning suggestions. In the future, AI will be used more in education, and it will use more advanced technology to make learning experiences that are better and more personalized (Isdayani B. et al., 2024). Dogan et al. (2023) said that AI has been used in many parts of education, such as individualized learning, virtual tutoring, and predicting how well kids would do in school. One of the best things about AI is that it can look at how students learn and propose information that is specific to their requirements. Merentek et al. (2023) say that AI-powered chatbots like ChatGPT can help students learn better by acting as middlemen. This lets students get answers to their academic queries in real time, which makes the learning process more efficient. AI-powered predictive data analysis also helps schools find pupils who might be at risk of failing or dropping out of school (Shafique et al., 2023).

More and more schools are using ChatGPT in the classroom, especially those that integrate AI to make learning better for students. A research at Ho Chi Minh City University of Technology and Education (HCMUTE) found that students often utilize ChatGPT to look up schoolwork, come up with ideas for assignments, and get their work done faster and more efficiently. ChatGPT not only makes learning resources easier to get to, but it also helps students understand difficult ideas by giving them fast replies and extra suggestions. However, study has also shown that there are problems that could arise, such as the risk of over-reliance, which may hinder the development of critical thinking skills, and the possibility of plagiarism, which could hurt academic integrity (Thi Nguyen et al., 2024). In addition to quickly finding information, ChatGPT helps with individualized learning by giving answers that are specific to each person's needs. Students can learn at their own pace and get feedback right away to help them understand hard ideas better.

ChatGPT also helps students learn a foreign language by correcting their grammar and making their arguments clearer (Montenegro, Rueda et al., 2023). ChatGPT helps students during brainstorming sessions, which makes group work more successful. A balanced approach is needed for ChatGPT to work well in education. Teachers need training to use this technology to its fullest potential without losing their main job of helping students learn (Yu, 2024). Strong academic rules are also needed to make sure that ChatGPT is used in a moral way and that it doesn't get in the way of students' creativity or critical thinking. If you use the correct tactics, ChatGPT can be a useful tool that helps modern education be more engaging, individualized, and effective (Farhi et al., 2023). The quality of the information is an important component that determines how well students learn and how happy they are with their education. In online education systems, it is very important that AI-generated content is reliable and useful (Almogren et al., 2024; Almulla, 2024).

Hong et al. (2023) say that giving students accurate and timely information that is matched to their needs will help them learn more quickly and understand better. But if AI is trained on data that is biased, of low quality, or of poor quality, the results may be wrong or misleading. So, it's important to have good ways to check material to make sure that students get academic content that is both useful and reliable. Achmadi and Oktrivina (2021) also discovered that online learning systems that can provide information that is relevant to the situation greatly increase student engagement and the effectiveness of learning as a whole. As technology changes education, it's important to make digital learning content better so that learning experiences can be more flexible and useful (Rakhmat & Sulistyowati, 2021).

However, problems like too much reliance on AI, false information, and gaps in digital access need to be fixed to make sure that the implementation is fair and moral. To make sure that AI not only makes things run more smoothly but also helps students build their critical and collaborative skills, strategic planning is necessary (Allam et al., 2023; Batubara, 2024). There have been a lot of studies on the quality of information in digital learning, but there is still a gap in study on how ChatGPT might help make learning more enjoyable. Achmadi and Oktrivina (2021) looked examined how the quality of the system, the information, and the service affect user happiness in e-learning. They found that users are more satisfied when these things are of higher quality.

But their study didn't explicitly look at how AI-generated material, such that from ChatGPT, affects overall learning pleasure. Li and Zhu (2022) looked at how the quality of the system and the information affected user happiness and the desire to use online learning platforms. Their study shows how important it is to have good information, but it doesn't look at ChatGPT as an interactive tool that can make learning more fun. Srimulyo et al. (2024) looked more at community-based e-learning systems like Brainly and didn't look into how AI-driven interactions might affect student satisfaction on a deeper level. Because of these limitations, more research is needed to find out how the quality of information affects how satisfied people are with their learning, especially when ChatGPT is used as a middleman. This study aims to fill that vacuum by looking into ChatGPT's position as a mediator between information quality and learning satisfaction.

It will provide both theoretical insights and practical advice for making digital learning systems that use AI more effective. This study is very important for figuring out how ChatGPT might improve digital learning, especially when it comes to the quality of content and user satisfaction. As AI grows increasingly common in schools, it's important to know how reliable and accurate it is and how it affects relationships between students and AI. The results should help people figure out how to best use ChatGPT in learning environments that are more flexible and effective. This work may also help shape academic policies that encourage the ethical and responsible use of AI in education. This study intends to help make learning experiences at all levels more engaging, inclusive, and creative by promoting personalized learning and long-term sustainability. The study took place at Universitas Muhammadiyah Surakarta (UMS), a private university with a “Excellent” accreditation level and a good reputation for using technology in the classroom. UMS encourages both students and teachers to use artificial intelligence, especially ChatGPT, as a tool for learning.

The university's rector, Prof. Dr. Sofyan Anif, M.Si., has backed this institutional commitment in a number of academic forums, such as the seminar on “Opportunities and Challenges of Artificial Intelligence in Higher Education.” He stated that AI technologies such as ChatGPT have significant potential to make education better, as long as it is handled in a responsible and ethical way (SOLOPOS.COM, 2023). This shows that UMS is aware of and ready to use AI technology in its academic setting. The survey included all 6,654 undergraduate (S1) students who were enrolled at Universitas Muhammadiyah Surakarta in the 2024 academic year. People who had utilized ChatGPT to help them with their schoolwork, including understanding course content, finishing assignments, or joining digital debates, were among

those who took part. We chose this group of people because we thought that UMS students have access to and expertise with AI tools. This made them good subjects for examining how the quality of information affects learning satisfaction, with ChatGPT as a mediating variable. The study should provide us a real-world look at how well AI can improve the quality of digital learning at colleges and universities.

METHOD

I. Participants

The people who took part in this study were undergraduate students (S1) from the Faculty of Teacher Training and Education (FKIP) at Universitas Muhammadiyah Surakarta who had utilized the ChatGPT app to help them with their schoolwork. We chose these participants because we thought they have used AI technologies, especially ChatGPT, in an academic setting, such doing homework, learning course material, and having digital conversations. The survey included all 1,253 current undergraduate FKIP students at Universitas Muhammadiyah Surakarta during the 2024 academic year. We chose this group of people because they are in an academic setting where they can use modern technology and are increasingly using digital tools like ChatGPT to learn. We used a purposive sampling method to choose participants. Samples were selected based on specific criteria aligned with the study's objectives (Sugiyono, 2019).

To be included in this study, you had to be an active undergraduate student at FKIP UMS, have used ChatGPT for schoolwork at least once in the past month, and agree to take part by filling out the questionnaire honestly and completely. The study has 100 people who answered. The sample size was chosen based on the quantitative method utilized and was thought to be big enough for model testing with Partial Least Squares Structural Equation Modeling (PLS,SEM). This made sure that the findings of the analysis could be understood correctly and reliably. The Faculty of Teacher Training and Education at UMS was where the data gathering took place. This location was chosen because it is close to the researcher and has a direct connection to the research topic, which makes it simpler to get reliable and focused primary data.

II. Data Collection Technique

Printed questionnaires were used to gather data. These were given out in person to undergraduate students in the FKIP faculty at Universitas Muhammadiyah Surakarta. We picked this strategy so that we could get direct answers from participants and make sure that the data we collected satisfied the set requirements. We constructed the questions for the questionnaire based on indicators from earlier research projects that had already been tested for validity and reliability. This meant that we didn't have to test these measures again. This study used a tool that measured three main things: the quality of the information, the use of ChatGPT, and the satisfaction with learning. We used a five-point Likert scale to score each question, with 1 being "Strongly Disagree" and 5 being "Strongly Agree." The data were collected right on campus and included students from different FKIP study programs to make sure the sample was representative of the whole student body.

III. Data Analysis Technique

This study used a correlational quantitative method to look at how the variables were related. It considered Information Quality as the independent variable, ChatGPT Usage as the mediating variable, and Learning Satisfaction as the dependent variable. We used the Partial Least Squares Structural Equation Modeling (PLS,SEM) method to analyze the data. This method was especially good for models with mediating factors and studies with small sample sizes. We used the most recent version of the SmartPLS program to do the analysis. PLS,SEM was chosen because it is very flexible. It doesn't need data to be normally distributed across

many variables, and it can work with models that have reflective indicators as well as categorical, ordinal, interval, and ratio data formats (Ghozali, 2018). The study looked at both the validity and reliability of the constructs in the measurement model or outer model analysis. We looked at the outer loading values of each indicator to see if they were convergent. A loading factor of 0.70 or higher showed good convergent validity, while values between 0.50 and 0.60 were still suitable for exploratory research.

We also looked at the Average Variance Extracted (AVE). An AVE value of 0.50 or higher meant that the convergent validity was good. We utilized two methods to check for discriminant validity: cross-loadings and the Fornell-Larcker criterion. It was thought that an indication was valid if it loaded more on the construct it was meant to measure than on other constructs (Ghozali, 2018). We used Cronbach's Alpha and Composite Reliability values to check the reliability of the construct. According to Ghozali and Latan (2015), a construct was dependable if its Composite Reliability was higher than 0.70 and its Cronbach's Alpha was higher than 0.60. The goal of the inner model or structural model analysis was to look at the connections between hidden constructs.

There were a number of tests, one of which was the determination coefficient (R^2), which shows how much of the variation in the endogenous variable can be explained by the exogenous factors. According to Ghozali (2018), a R^2 score higher than 0.67 was strong, one between 0.33 and 0.67 was moderate, and one lower than 0.33 was weak. The Normed Fit Index (NFI) was used to check how well the model fit. A score above 0.90 meant that the model fit well, whereas values between 0.80 and 0.90 were just slightly acceptable. We also assessed the effect size (f^2) to see how strong the influence was between the constructs. According to Ghozali (2018), a f^2 value of 0.02 meant a little effect, 0.15 meant a medium effect, and 0.35 meant a substantial influence. Using the bootstrapping method in SmartPLS, we were able to do hypothesis testing with t-tests (t-statistics). The goal was to find out how important the connections between constructs were. We checked the hypotheses by seeing if the estimated t-value was higher than the crucial value at a 5% significance level ($\alpha = 0.05$). A t-value of 1.96 meant that the hypothesis was accepted since it was statistically significant. A t-value below this level meant that the effect was not statistically significant.

RESULTS AND DISCUSSION

I. Research Findings

This study aimed to examine the influence of information quality on learning satisfaction, with the use of ChatGPT as a mediating variable. The research model employed the Partial Least Squares–Structural Equation Modeling (PLS-SEM) analysis method to determine the strength of the relationships between the independent and dependent variables, as well as to explore the mediating role of ChatGPT usage in the learning process. The following table presents the outer loading results generated through SmartPLS, which illustrate how each indicator contributes to its respective construct.

Table 1. Outer Loadings from PLS Algorithm

Learning Satisfaction	Information Quality	ChatGPT Usage
KB1	0.412	
KB10	0.478	
KB11	0.799	
KB12	0.680	
KB2	0.542	
KB3	0.791	
KB4	0.678	
KB5	0.451	

KB6	0.269	
KB7	0.380	
KB8	0.520	
KB9	0.401	
KI1		0.372
KI10		0.702
KI11		0.667
KI12		0.417
KI2		0.461
KI3		0.595
KI4		0.727
KI5		0.602
KI6		0.437
KI7		0.327
KI8		0.494
KI9		0.528
PC1		
PC10		
PC11		
PC12		
PC2		
PC3		
PC4		
PC5		
PC6		
PC7		
PC8		
PC9		

Source: Processed data from SmartPLS, 2025

The results of the outer loading validity test indicate that only a few indicators for each variable meet the validity criterion (> 0.70). For the *Learning Satisfaction* variable, only indicators KB3 and KB11 are considered valid, while most others require reevaluation or removal, especially those with values below 0.40 such as KB6 and KB7. A similar pattern is observed for the *Information Quality* variable, where only KI10 and KI4 meet the standard. Meanwhile, for the *ChatGPT Usage* variable, indicators PC3, PC4, and PC11 are valid, whereas the rest fall into either marginal or invalid categories. Consequently, it is recommended to retain only the indicators with high outer loading values to strengthen the overall model quality.

Table 2. Construct Reliability and AVE Results

	Cronbach's Alpha	**Composite Reliability (rho_a)**	**Composite Reliability (rho_c)**	**Average Variance Extracted (AVE)**
Learning Satisfaction	0.781	0.828	0.832	0.311
Information Quality	0.783	0.807	0.825	0.294
ChatGPT Usage	0.807	0.840	0.848	0.332

Source: Processed data from SmartPLS, 2025

The reliability test results show that all variables demonstrate good internal consistency, as indicated by Cronbach's Alpha and Composite Reliability values exceeding the 0.70 threshold. However, the AVE (Average Variance Extracted) values for *Learning Satisfaction* (0.311), *Information Quality* (0.294), and *ChatGPT Usage* (0.332) are still below the minimum acceptable standard of 0.50. This indicates that convergent validity has not been achieved, suggesting the need for further refinement, such as removing indicators with low outer loading values, to improve construct quality.

Table 3. Fornell-Larcker Criterion Results

	Learning Satisfaction	Information Quality	ChatGPT Usage
Learning Satisfaction	0.557		
Information Quality	0.548	0.542	
ChatGPT Usage	0.597	0.540	0.576

Source: Processed data from SmartPLS, 2025

According to Fornell and Larcker (1981), discriminant validity is established when the square root of the AVE for each construct is greater than the correlations with other constructs. However, the results show that this criterion has not yet been met. For instance, the square root of AVE for *ChatGPT Usage* (0.576) is lower than its correlation with *Learning Satisfaction* (0.597). This implies that discriminant validity has not been achieved, indicating that the measurement model still requires further evaluation to ensure each construct uniquely represents its intended variable.

Table 4. Cross Loading Results

	Learning Satisfaction	Information Quality	ChatGPT Usage
KB1	0.412	0.286	0.170
KB10	0.478	0.223	0.219
KB11	0.799	0.492	0.464
KB12	0.680	0.367	0.374
KB2	0.542	0.260	0.254
KB3	0.791	0.441	0.510
KB4	0.678	0.352	0.422
KB5	0.451	0.170	0.376
KB6	0.269	0.057	0.222
KB7	0.380	0.251	0.293
KB8	0.520	0.285	0.278
KB9	0.401	0.260	0.206
KI1	0.188	0.372	0.167
KI10	0.405	0.702	0.435
KI11	0.409	0.667	0.349
KI12	0.125	0.417	0.139
KI2	0.297	0.461	0.283
KI3	0.250	0.595	0.218
KI4	0.402	0.727	0.445
KI5	0.394	0.602	0.372
KI6	0.195	0.437	0.162
KI7	0.125	0.327	0.112
KI8	0.286	0.494	0.294
KI9	0.194	0.528	0.216
PC1	0.114	0.162	0.363
PC10	0.398	0.366	0.652

PC11	0.474	0.400	0.720
PC12	0.461	0.451	0.690
PC2	0.389	0.321	0.673
PC3	0.437	0.337	0.730
PC4	0.413	0.393	0.701
PC5	0.136	0.245	0.392
PC6	0.364	0.189	0.479
PC7	0.251	0.236	0.549
PC8	0.218	0.256	0.352
PC9	0.169	0.227	0.382

Source: Processed using SmartPLS, 2025

The results of the discriminant validity test using cross loading reveal that most indicators display the highest loading value on their corresponding constructs, suggesting acceptable discriminant validity. For instance, indicators such as KB11, KI4, and PC3 show strong discriminant validity. However, certain indicators—like KB5, KI1, and PC8—demonstrate cross-loading values that are nearly equal or even higher on constructs other than their intended ones. This suggests that discriminant validity is not fully achieved. As a result, it is necessary to evaluate and potentially eliminate these weaker indicators to improve the accuracy and reliability of the measurement model.

Table 5. R-Square Results

Variable	R-Square	Adjusted R-Square
Learning Satisfaction	0.428	0.416
ChatGPT Usage	0.292	0.285

Source: Processed using SmartPLS, 2025

Based on the table above, the R-square value for the *Learning Satisfaction* variable is 0.428. This means that the independent variables in the model explain approximately 42.8% of the variance in learning satisfaction, while the remaining 57.2% is influenced by other factors not included in the model. Meanwhile, the R-square value for *ChatGPT Usage* is 0.292, indicating that the independent variables account for about 29.2% of the variation in ChatGPT usage, with the remaining 70.8% explained by other unmeasured factors. These findings suggest a moderate level of explanatory power and indicate the potential for expanding the model in future research.

Table 6. Goodness of Fit (GoF) Results

	Saturated Model	Estimated Model
SRMR	0.137	0.137
d_ULS	12.501	12.501
d_G	n/a	n/a
Chi-square	infinite	infinite
NFI	n/a	n/a

Source: Processed with SmartPLS, 2025

The results from the Goodness of Fit (GoF) test indicate that the SRMR value of 0.137 exceeds the recommended threshold of 0.08, suggesting that the model does not yet exhibit a satisfactory fit with the data. Likewise, the d_ULS value is 12.501, but this figure is difficult to interpret in the absence of a critical benchmark. Several other fit indices, such as d_G, Chi-square, and NFI, are unavailable. These findings imply that the current model structure requires further refinement—both in terms of indicators and inter-variable relationships—in order to achieve a more acceptable model fit.

Table 7. F-Square Results

	Learning Satisfaction	Information Quality	ChatGPT Usage
Learning Satisfaction	–	–	–
Information Quality	0.126	–	0.413
ChatGPT Usage	0.223	–	–

Source: Processed with SmartPLS, 2025

The f-square test results reveal that *Information Quality* has a strong effect on *ChatGPT Usage* ($f^2 = 0.413$), while *ChatGPT Usage* has a moderate effect on *Learning Satisfaction* ($f^2 = 0.223$). In contrast, *Information Quality* shows a small-to-moderate effect on *Learning Satisfaction* ($f^2 = 0.126$). These results suggest that ChatGPT plays a significant mediating role in the relationship between information quality and learning satisfaction.

Table 8 *Path Coefficient (Bootstrapping)*

	Original sample (O)	*Sample mean* (M)	*Standard deviation* (STDEV)	*T statistics* (|O/STDEV|)	*P values*
Information Quality → Learning Satisfaction	0.319	0.336	0.151	2.113	0.035
Information Quality → ChatGPT Usage	0.540	0.571	0.065	8.373	0.000
ChatGPT Usage → Learning Satisfaction	0.425	0.431	0.116	3.676	0.000
Information Quality → ChatGPT → Learning Satisfaction	0.230	0.246	0.072	3.169	0.002

Source: Processed with SmartPLS, 2025

The hypothesis testing results confirm that *Information Quality* has a statistically significant influence on *Learning Satisfaction* ($p = 0.035$), and an even stronger, highly significant effect on *ChatGPT Usage* ($p = 0.000$). Moreover, *ChatGPT Usage* significantly affects *Learning Satisfaction* ($p = 0.000$). Importantly, there is a significant mediating effect of ChatGPT in the relationship between information quality and learning satisfaction ($p = 0.002$). These findings clearly demonstrate that the integration of ChatGPT strengthens the link between high-quality information and student satisfaction in digital learning environments.

II. Discussion

The Influence of Information Quality on Learning Satisfaction

The findings of this study indicate that information quality has a positive and significant effect on learning satisfaction. This suggests that the higher the quality of information received by students during the learning process, the more satisfied they tend to feel with their learning experience. Information that is relevant, accurate, and easy to understand helps students grasp the material more effectively, complete assignments efficiently, and enhance overall learning productivity. These results are consistent with the study by Achmadi & Oktrivina (2021), which found that high-quality information within an e-learning system plays a crucial role in improving user satisfaction.

The Influence of Information Quality on the Use of ChatGPT

Students tend to rely on digital tools that consistently provide accurate and relevant information. ChatGPT becomes part of their daily study habits when it offers responses that are clear and easy to follow. A student who finds useful explanations will often return to the same platform for similar tasks. The consistent delivery of high-quality output builds trust over time without needing additional prompts. That trust leads to repeated use in a variety of academic situations such as assignments or research tasks. The more reliable the tool appears to them the more deeply it becomes integrated into their workflow.

Many students view ChatGPT as a shortcut that reduces their time spent searching through multiple sources. The platform provides structured responses that often reflect the clarity of formal academic materials. Students appreciate not having to navigate complex websites or lengthy articles to get the information they need. This level of convenience creates a strong attachment to the platform as a regular learning companion. High-quality content encourages students to explore topics beyond what is required in class. They become more willing to engage with subjects that once felt too challenging or unfamiliar.

Li and Zhu in 2022 confirmed that good information quality plays a central role in shaping student behavior. They found that students are more motivated to use learning platforms when they trust the consistency of the information given. ChatGPT mirrors this finding as students repeatedly choose it over traditional tools. The appeal comes from the way it streamlines academic routines without sacrificing reliability. Students report increased confidence when they receive prompt yet academically appropriate responses.. That level of satisfaction encourages them to return even when they are not under pressure.

The research clearly aligns with these patterns and highlights a shift in how students interact with information sources. ChatGPT stands out because it combines fast access with dependable content delivery. Each experience with the tool reinforces the idea that it can handle different types of academic challenges. This influence does not happen overnight but grows stronger with repeated success. Every time students use the tool and receive helpful results they become more likely to rely on it again. The relationship becomes stronger as the tool continues to meet their expectations in each new learning task.

The Influence of ChatGPT Usage on Learning Satisfaction

Students gain more satisfaction from their studies when they receive quick and useful answers. ChatGPT offers direct responses that help them move forward without delay. Many students turn to the tool when they want fast help that still feels accurate. This habit shapes their study routines in ways that make learning feel more manageable. They no longer need to wait for scheduled tutoring or peer replies. This constant access builds a stronger sense of control during study sessions.

Students often feel more confident when using tools that respond clearly and quickly. ChatGPT helps them stay motivated by reducing the time needed to search for solutions. Many of them keep using it because it gives support that feels personalized. That experience makes learning feel less frustrating and more rewarding. Every good answer reinforces their choice to return to the platform again. This cycle of use and reward creates a stronger connection between student and tool.

The ability to explore difficult topics without feeling stuck improves how students experience learning. ChatGPT helps them unlock ideas that once felt too complex to tackle alone. They start to rely on it not just for answers but also for direction. When a student sees consistent progress they start to enjoy the process more. That shift turns academic stress into something easier to handle. Over time the tool becomes part of what keeps them engaged with their studies.

Thi Nguyen and colleagues in 2024 found similar results in their research. They observed that ChatGPT makes it easier for students to reach learning goals more efficiently. Their study

showed that faster information access leads to stronger academic results. Students using AI tools like this one report better focus during study time. Their learning becomes more active and less passive when supported by reliable answers. These findings support the idea that good digital tools increase student satisfaction in meaningful ways.

The Mediating Role of ChatGPT Usage Between Information Quality and Learning Satisfaction

Students are more likely to feel satisfied when they use ChatGPT as a regular part of their study routine. They choose the platform again and again when they see that it gives them useful results. The quality of the information plays a big role in this decision. They do not continue using a tool if it gives poor or confusing answers. When the content is helpful they build a habit of returning to it often. This repeated interaction helps make the learning process feel more manageable.

Good information does not just help students once but keeps drawing them back for more support. Each session with ChatGPT becomes another moment where their confidence grows. They start to rely on the platform not just for answers but for clarity and direction. Their usage becomes part of a rhythm that supports their academic goals. Every accurate response increases their trust in the platform. This trust leads to stronger motivation during study hours.

The impact of using ChatGPT creates a stronger link between what they read and how they feel about learning. The more often they engage the more satisfied they become with their progress. Their study habits shift because they now expect tools to respond quickly and clearly. That expectation reshapes how they study and how often they seek help. This behavior shows that ChatGPT is more than a tool and becomes a key part of their academic routine. These patterns shape how they feel about the learning process as a whole.

The findings go beyond earlier studies because they focus on how technology fits into learning behavior. Previous research like Srimulyo et al from 2024 did not explore this kind of indirect effect. This study brings a new view by showing how ChatGPT fills a gap in the academic experience. It acts like a bridge that links good information to stronger learning outcomes. The role of AI becomes clearer when its function helps improve both usage and satisfaction. This change shows that smart tools can do more than just deliver facts.

CONCLUSION

This study concludes that information quality has a significant impact on students' learning satisfaction, both directly and indirectly through the mediating role of ChatGPT usage. Accurate, relevant, and easy-to-understand information encourages students to engage more actively with ChatGPT during the learning process. The use of ChatGPT has been shown to positively contribute to learning satisfaction, as it provides information that is fast, interactive, and tailored to students' academic needs. These findings highlight the important role of ChatGPT in strengthening the link between information quality and learning satisfaction, underscoring its potential as an effective learning tool in today's digital era. Based on the findings, it is recommended that educational institutions integrate AI technologies like ChatGPT into their digital learning systems and provide proper guidance to ensure students can use these tools responsibly and effectively. Students are also encouraged to use ChatGPT as a supplementary resource for exploring information more broadly, while still developing their critical thinking and independent learning skills. Future research is encouraged to include additional variables such as learning motivation, self-regulated learning, or the effectiveness of digital interaction, in order to gain a deeper and more comprehensive understanding of the role of AI-based technologies in education.

REFERENCE

Achmadi, A., & Oktrivina, A. (2021). The Effect of System Quality, Information Quality and

Service Quality on User Satisfaction of E-Learning System. *The International Journal of Business Review (The Jobs Review)*, *4*(2), 103–120. https://doi.org/10.17509/tjr.v4i2.40483

Allam, H., Dempere, J., Akre, V., & Flores, P. (2023). Artificial Intelligence in Education (AIED): Implications and Challenges. *ResearchGate*, 126–140. https://doi.org/10.2991/978-94-6463-286-6_10

Almogren, A. S., Al-Rahmi, W. M., & Dahri, N. A. (2024). Exploring factors influencing the acceptance of ChatGPT in higher education: A smart education perspective. *Heliyon*, *10*(11). https://doi.org/10.1016/j.heliyon.2024.e31887

Almulla, M. A. (2024). Investigating influencing factors of learning satisfaction in AI ChatGPT for research: University students perspective. *Heliyon*, *10*(11). https://doi.org/10.1016/j.heliyon.2024.e32220

B, I., Thamrin, A. N., & Milani, A. (2024). Implementasi Etika Penggunaan Kecerdasan Buatan (AI) dalam Sistem Pendidikan dan Analisis Pembelajaran di Indonesia. *Digital Transformation Technology*, *4*(1), 714–723. https://doi.org/10.47709/digitech.v4i1.4512

Batubara, Y. (2024). Pemanfaatan Artificial Intelligence (AI) Sebagai Strategi Dakwah: Analisis Peluang dan Tantangan. *TADBIR: Jurnal Manajemen Dakwah*, *6*(1).

Dr. Lohans Kumar Kalyani. (2024). The Role of Technology in Education: Enhancing Learning Outcomes and 21st Century Skills. *International Journal of Scientific Research in Modern Science and Technology*, *3*(4), 05–10. https://doi.org/10.59828/ijsrmst.v3i4.199

Farhi, F., Jeljeli, R., Aburezeq, I., Dweikat, F. F., Al-shami, S. A., & Slamene, R. (2023). Analyzing the students' views, concerns, and perceived ethics about chat GPT usage. *Computers and Education: Artificial Intelligence*, *5*(November), 100180. https://doi.org/10.1016/j.caeai.2023.100180

Ghozali. (2018). *Aplikasi Analisis Multivariat Dengan Program IBM SPSS 25* (9th ed.). Badan Penerbit Universitas Diponegoro.

Ghozali, I., & Latan, H. (2015). *Parsial Least Squares Konsep Teknik dan Aplikasi dengan Program Smart PLS 3.0.* Universitas Diponegoro Semarang.

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, *3*(February), 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Hardiansyah, M. U., Razak Jer, A., & Nugroho, G. (2024). THE INFLUENCE OF ORGANIZATIONAL CULTURE AND LEADERSHIP STYLE ON EMPLOYEE PERFORMANCE WITH JOB SATISFACTION AS AN INTERVENING VARIABLE (CASE STUDY BPJS EMPLOYMENT PEKANBARU CITY). *Jurnal Apresiasi Ekonomi*, *12*(2), 256–264.

Hong, Y., Lian, J., Xu, L., Min, J., Wang, Y., Freeman, L. J., & Deng, X. (2023). Statistical perspectives on reliability of artificial intelligence systems. *Quality Engineering*, *35*(1), 56–78. https://doi.org/10.1080/08982112.2022.2089854

Li, X., & Zhu, W. (2022). System quality, information quality, satisfaction and acceptance of online learning platform among college students in the context of online learning and blended learning. *Frontiers in Psychology*, *13*(December), 1–15. https://doi.org/10.3389/fpsyg.2022.1054691

Merentek, T. C., Usoh, E. J., & Lengkong, J. S. J. (2023). Implementasi Kecerdasan Buatan ChatGPT dalam Pembelajaran. *Jurnal Pendidikan Tambusai*, *7*(3), 26862–26869.

Montenegro-Rueda, M., Fernández-Cerero, J., Fernández-Batanero, J. M., & López-Meneses, E. (2023). Impact of the Implementation of ChatGPT in Education : A. *Department of Teaching and Educational Organization*, 1–13.

Rakhmat, & Sulistyowati. (2021). Peran Teknologi Pendidikan Dalam Meningkatkan Kualitas

Pembelajaran Di Era Industri 4.0. *Jurnal Pendidikan Teknologi Dan Kejuruan*, *19*(2), 201–213.

Shafique, R., Aljedaani, W., Rustam, F., Lee, E., Mehmood, A., & Choi, G. S. (2023). Role of Artificial Intelligence in Online Education: A Systematic Mapping Study. *IEEE Access*, *11*, 52570–52584. https://doi.org/10.1109/ACCESS.2023.3278590

Srimulyo, K., Yuadi, I., Hu, C. C., Indarwati, I. S. A., Gunarti, E., & Pratiwi, F. D. (2024). A Comprehensive Analysis of Information Quality in E-Learning: An Example of Online Learning with Brainly. *TEM Journal*, *13*(4), 3205–3220. https://doi.org/10.18421/TEM134-55

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta, CV

Thi Nguyen, T. N., Van Lai, N., & Thi Nguyen, Q. (2024). Artificial Intelligence (AI) in Education: A Case Study on ChatGPT's Influence on Student Learning Behaviors. *Educational Process: International Journal*, *13*(2), 105–121. https://doi.org/10.22521/edupij.2024.132.7

Wibowo, G. A., Karim, A. A., Hasan, S. H., & Ruhimat, M. (2023). Use of Technology in Active Learning: Increasing Student Interaction and Engagement. *Al-Hijr: Journal of Adulearn World*, *2*(4), 271–293. https://doi.org/10.55849/alhijr.v2i4.539

Yu, H. (2024). The application and challenges of ChatGPT in educational transformation: New demands for teachers' roles. *Heliyon*, *10*(2), e24289. https://doi.org/10.1016/j.heliyon.2024.e24289

Ghozali. (2018). *Aplikasi Analisis Multivariat Dengan Program IBM SPSS 25* (9th ed.). Badan Penerbit Universitas Diponegoro.

Ghozali, I., & Latan, H. (2015). *Parsial Least Squares Konsep Teknik dan Aplikasi dengan Program Smart PLS 3.0.* Universitas Diponegoro Semarang.

SOLOPOS.COM. (2023). *Rektor UMS Ingin ChatGPT Jadi Alat Bantu Pembelajaran Dosen dan Mahasiswa*. Universitas Muhammadiyah Surakarta. https://news.ums.ac.id/id/05/2023/rektor-ums-ingin-chatgpt-jadi-alat-bantu-pembelajaran-dosen-dan-mahasiswa/

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta, CV.