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Analysis of User Perceptions on Interactive Learning Platforms Based on Artificial Intelligence

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ABSTRACT

Education is one field that is increasingly adopting artificial intelligence (AI) technology in an effort to improve the learning experience. AI-based interactive learning platforms have become a significant trend in modern education. This research aims to analyze user perceptions of AI-based interactive learning platforms and identify factors that influence their acceptance of this technology. We conducted an analysis using the SmartPLS method to explore the relationship between variables that influence user perceptions of AI in education. Research data was collected through surveys given to educational participants using AI-based learning platforms. The results of this research include findings about the extent to which factors such as interaction quality, usability, and social factors influence user perceptions of AI-based learning platforms. The results of data analysis will provide valuable insight into how the educational community accepts and adopts AI technology in the learning process. It is hoped that this research will make a significant contribution to the understanding of the acceptance of AI technology in educational contexts, as well as provide guidance for the development of more effective interactive learning platforms. The findings of this research can also support decision making in implementing AI in educational settings.

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1. INTRODUCTION

In an effort to improve the learning experience, artificial intelligence technology has become a major focus in modern education. AI-based interactive learning platforms have become a significant trend, promising innovation in teaching and learning. The success and acceptance of this technology greatly depends on the perception of users, including students, teachers, and stakeholders in the field of education. This research aims to dig deeper into user perceptions of AI-based interactive learning platforms and identify factors that influence acceptance of this technology [1]. In an effort to achieve the objectives of this research, we used the SmartPLS method, which allows us to test and analyze the relationships between various variables that influence users' perceptions of AI in education. Our research data was obtained through surveys given to educational participants who actively use AI-based learning platforms. Thus, this research seeks to open insight into the extent to which factors such as interaction quality, usability, and social factors influence the way the

educational community accepts and adopts AI technology in the learning process [2]. It is hoped that the results of this research will provide a significant contribution in understanding the dynamics of AI technology acceptance in the educational context. In addition, it is hoped that the findings of this research can also provide valuable guidance for the development of more effective and relevant interactive learning platforms. This has the potential to improve the learning experience for students and provide clear benefits for teachers and educational institutions in making decisions regarding the use of AI technology in learning [3].

1.1. Adoption of Artificial Intelligence Technology in Education

In recent years, artificial intelligence (AI) technology has played an increasingly significant role in the field of education. AI-based interactive learning platforms have become a major trend in efforts to provide more adaptive and effective learning experiences [4]. Previous research highlights that user perception of these AI technologies is a key factor in the success and adoption of these technologies [5]. The views and attitudes of users, including students, teachers and other educational stakeholders, can influence the extent to which this technology will be used in the learning process [6]. Users' perceptions of AI in education are not only determined by individual characteristics, but are also influenced by social factors. Culture, norms, and social interactions can play an important role in how these technologies are received and used [7]. Extensive research in the literature has highlighted the influence of social factors in encouraging or hindering the adoption of AI technologies in diverse educational contexts around the world [8]. Approaches to understanding technology acceptance have been the focus of extensive research. Models such as the Technology Acceptance Model (TAM) have been used to explain the factors that influence how individuals accept and adopt technology. Such models can help us understand key variables that influence users' perceptions of AI in education, such as perceived usefulness and ease of use [9]. The quality of interaction between users and AI-based learning platforms is a key factor in determining the acceptance of this technology. Several studies have highlighted how important a good interactive experience is in building positive user perceptions of AI technology [10]. Interaction quality includes the extent to which an AI platform provides personalized solutions, interacts with users naturally, and provides an effective learning experience [11]. While AI technology promises many benefits in education, the literature also covers the challenges that must be faced in integrating it. Research has identified advantages such as personalized learning, real-time feedback, and increased efficiency, while highlighting challenges such as data privacy, ethical concerns, and the changing role of teachers [12].

This research aims to address the main problems related to the acceptance and adoption of artificial intelligence (AI) technology in the educational context [13]. The main problem that needs to be resolved is how user perceptions, including students, teachers and other educational stakeholders, influence the level of acceptance of AI technology in the learning process. Additionally, issues that need to be reviewed involve factors that influence users' perceptions of AI, with a focus on interaction quality, usability, and social factors [14]. In this context, we will identify barriers and opportunities in the adoption of AI technology in education and analyze how the influence of social factors such as culture and norms in the educational context can influence the acceptance of AI technology. This research seeks to answer the question of the extent to which AI technology can be effectively integrated in educational environments by understanding the perspectives and feelings of the users involved [15].

2. LITERATURE REVIEW

Interactive learning platforms utilizing Artificial Intelligence (AI) have become a focal point in the realm of education, reshaping traditional teaching methods. This literature review aims to offer a comprehensive overview of existing research on user perceptions of interactive learning platforms that incorporate AI.

2.1. Evolution of Interactive Learning Platforms

The evolution of interactive learning platforms has witnessed a shift from traditional teaching methods towards technology-driven educational tools. Early studies highlighted the emergence of e-learning platforms and their impact on educational practices[7]. As AI technologies matured, researchers began exploring their integration into learning environments to enhance user experiences and outcomes.

2.2. The Role of Artificial Intelligence in Education

AI's role in education has been extensively explored, emphasizing its potential to personalize learning experiences. Research discussed the importance of adaptive learning systems powered by AI, catering to indi-

vidual student needs and optimizing the learning process. Recent studies have investigated the effectiveness of AI-driven educational interventions in improving student engagement and academic performance[9].

2.3. User Perceptions on AI-Based Learning Platforms

Understanding user perceptions is crucial for the successful implementation of AI in educational settings[10]. Studies have revealed positive responses regarding personalized learning experiences on AI-enhanced platforms. However, concerns related to privacy, data security, and ethical considerations were raised, highlighting the need for a balanced approach in the development and deployment of AI-powered educational tools[11].

Despite promising outcomes, challenges persist in the integration of AI into interactive learning platforms. Issues such as algorithmic bias, lack of transparency, and the digital divide have been discussed. On the other hand, opportunities abound, with AI presenting the potential to transform education by providing adaptive, inclusive, and accessible learning experiences. In conclusion, the literature surrounding user perceptions on interactive learning platforms based on AI underscores the transformative potential of these technologies in education. While positive attitudes prevail, it is essential to address challenges and concerns to ensure the ethical and equitable implementation of AI in educational contexts. This research aims to contribute to the ongoing discourse by exploring and analyzing user perceptions in the specific context of AI-driven interactive learning platforms.

3. RESEARCH METHODOLOGY

This research adopts a quantitative approach to explore user perceptions of artificial intelligence (AI)-based interactive learning platforms in an educational context. We chose a survey method to collect data from educational participants who actively use AI learning platforms. This survey was designed to gain deep insight into how users perceive and accept AI technology in the learning process [16]. The survey questions covered key variables such as perceived usefulness, quality of interactions, and social factors influencing the acceptance of AI technology in education. The following are the key variables in this research:

Table 1. Research variable

No	Variable	Indicator
1	Quality of Interaction	The positive impact felt by users on interactions with AI platforms.
2	Usage	The level of usefulness of using AI technology in the context of learning.
3	Social Factors	The influence of social factors, such as culture and norms, on the acceptance of AI technology in education.

Our research data was obtained through an online survey administered to educational participants [17]. The survey includes structured questions designed to assess user perceptions of AI-based interactive learning platforms. Participants in this research consisted of students, teachers and other educational stakeholders who actively use this technology in learning contexts [18]. We selected a representative and diverse sample to ensure the data collected included a wide range of viewpoints and experiences regarding the use of AI technology in education [19]. The data collected will be analyzed using the Partial Least Squares (PLS) method using SmartPLS software. This analysis will allow us to test and quantify the relationships between variables that influence user perceptions of AI in education. We will examine the extent to which factors such as interaction quality, usability, and social factors influence the acceptance of this technology. The results of this analysis will provide deep insight into how the educational community accepts and adopts AI technology in the learning process, which will form the basis for the interpretation and conclusions of this research [20].

4. RESULT AND DISCUSSION

In this research, we conducted a survey of educational participants who actively use Artificial Intelligence (AI) based learning platforms [21]. Data from 300 respondents was analyzed using SmartPLS software to understand the factors influencing the acceptance of AI technology in educational contexts [22]. Before we

proceed with a further explanation of the results, it is important to note that we have conducted data validity tests to ensure the reliability and quality of the data used in the analysis. In our data validity analysis, we used several metrics, including Cronbach's Alpha, Composite Reliability (rho_a), Composite Reliability (rho_c), and Average Variance Extracted (AVE) [23]. The following table shows the results of data validity tests for research variables which include Quality of Interaction (KI), Usefulness (K), and Social Factors (FS):

Table 2. Data Validity Test

No	Variable	Indicator
1	Quality of Interaction	The positive impact felt by users on interactions with AI platforms.
2	Usage	The level of usefulness of using AI technology in the context of learning.
3	Social Factors	The influence of social factors, such as culture and norms, on the acceptance of AI technology in education.

The results of this data validity test show that each variable has a very high level of reliability, as reflected in the Cronbach's Alpha value which exceeds the generally accepted threshold, namely 0.7. In addition, Composite Reliability (rho_a) and Composite Reliability (rho_c) also show a high level of reliability, exceeding the expected threshold [24]. Additionally, the Average Variance Extracted (AVE) indicates that the variability in each of these variables is quite high, with values exceeding the generally accepted threshold of 0.5. This shows that the variables of this research are able to measure well the construct in question, namely Quality of Interaction (KI), Usefulness (K), and Social Factors (FS) [25].

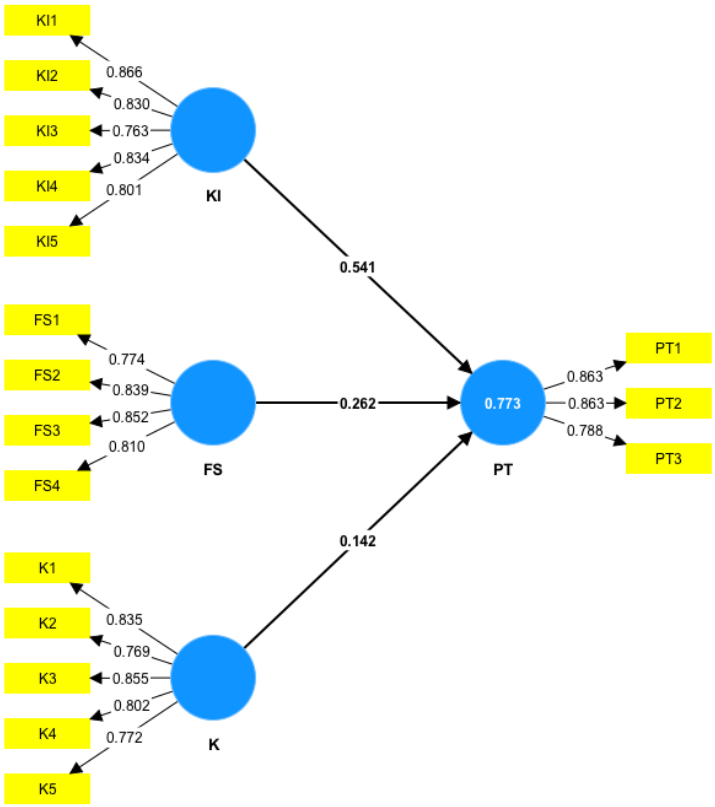

Figure 1. SmartPLS Analysis Results

The results of the analysis that have been carried out show that the quality of interaction, usability, and social factors have a positive and significant influence on the acceptance of AI technology in the educational context. In this context, we use quantitative data to measure the impact of these variables. These findings are very relevant in understanding the acceptance of AI technology in education. The quality of interactions with AI platforms has a path coefficient of 0.541, indicating a strong positive influence on the acceptance of AI technology in educational contexts. With a significant path coefficient value, this indicates that the better the quality of interaction perceived by the user, the higher the level of acceptance of AI technology. Meanwhile, the usability variable has a lower path coefficient of 0.142, but still shows a significant positive influence on AI technology acceptance. These results indicate that although the use of AI technology in learning is considered useful, its impact may not be as strong as the quality of interactions in influencing the acceptance of this technology. Social factors also influence the acceptance of AI technology, although their impact is lower than the quality of interactions, with a path coefficient of 0.262. Although the impact is lower, the significant path coefficient values indicate that social factors, such as culture and norms, play a role in how the educational community accepts and adopts AI technology. Thus, the findings of this study highlight the importance of interaction quality, usability, and social factors in understanding the acceptance of AI technology in education. These results can provide a foundation for the development of more effective AI learning platforms and more successful implementation strategies in educational contexts.

5. CONCLUSION

This research provides valuable insight into the acceptance of Artificial Intelligence (AI) technology in educational contexts. Through data analysis carried out using the SmartPLS method, we can conclude that interaction quality, usability, and social factors have a significant role in influencing the way the educational community accepts and adopts AI technology. The results show that the better the interaction quality perceived by the user, the higher the acceptance of AI technology. This underscores the importance of developing AI learning platforms that focus on enhancing quality interactions and personalization for users. In addition, the use of AI technology in learning contexts also has a strong impact on acceptance. The more useful AI technology is in facilitating the learning process, the greater the likelihood that its use will be accepted by the educational community. These results can help plan and develop strategies for implementing AI technology in education that are more successful and effective. Additionally, social factors, such as culture and norms in the educational environment, also play an important role in the acceptance of AI technology. Although their impact is slightly lower compared to interaction quality and usability, social factors are still relevant in influencing user perceptions. Therefore, approaches to implementing AI technology must take into account the social and cultural context in which this technology is used. Overall, this research provides an in-depth look at the dynamics of AI technology acceptance in education and can be used as a guide in the development of more effective and relevant implementation strategies in the future.

6. SUGGESTION

Our hope is that the results of this research will provide great benefits to industry, society, and academia, and help in formulating better policies, developing best practices, and deepening knowledge in this field. Future research should examine in more depth the specific contexts in the adoption of artificial intelligence technology in education. This may include investigations at more specific educational levels, such as primary, secondary, or tertiary education, or within specific disciplines. Research that focuses more on specific contexts will provide more detailed insights into how the variables influencing the acceptance of AI technologies may vary according to the environment.

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