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The Impact of Artificial Intelligence (AI) and Social Media on Student Academic Performance: a Case Study at a Health College

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ABSTRACT

This study investigates the effects of Artificial Intelligence (AI), Smart Learning, and Social Media on academic performance among students at STIKES ARJUNA Laguboti, Toba, North Sumatra. Using a quantitative approach, data were collected from 225 students across three academic programs—Bachelor's in Pharmacy, Diploma in Pharmacy, and Diploma in Nursing—through random sampling.

SmartPLS analysis reveals that Smart Learning and Social Media significantly enhance academic performance, with Smart Learning showing a strong positive impact, while Social Media fosters engagement and collaborative learning, indirectly improving outcomes. However, AI, while positively influencing Smart Learning, does not directly affect academic performance, suggesting that effective AI integration requires enhanced digital literacy and targeted interventions. These findings underscore the importance of integrating Smart Learning and Social Media into educational frameworks and addressing challenges in AI utilization to optimize academic success.

1. INTRODUCTION

A significant number of facets of contemporary life, including education, have been significantly altered as a result of the rapid growth of technology. Within the realm of education, the incorporation of artificial intelligence (AI) and social media has become increasingly prevalent over the course of the past several years. As of 2023, over 4.5 billion people actively use social media platforms globally, transforming these platforms from mere communication tools into comprehensive ecosystems for knowledge sharing, collaboration, and community building (Haloho, 2024; Shahzad et al., 2024). This shift has prompted educators and institutions to explore how AI and social media can enhance the learning experience, increase student engagement, and improve academic performance.

As a result of its wide range of applications that extend beyond the realm of entertainment, social media has evolved into an integral component of everyday life. The use of social media platforms like YouTube, Facebook, Instagram, and Twitter as instructional and learning aids has become increasingly prevalent in the field of education. According to the findings of a survey conducted by the Indonesian Internet Service Providers Association (APJII), the number of people in Indonesia who are actively using the internet increased to 196.71 million between the years 2019 and 2020. This figure represents 73.7% of the total population. Within this group of users, social media platforms experienced a substantial amount of engagement, with Facebook, YouTube, and Instagram being the most popular platforms(Febriani & Ritonga, 2022).

The growing use of social media in education has brought several benefits. Studies show that social media can foster greater student engagement by creating interactive and collaborative learning environments. For example, services such as Facebook and WhatsApp make it possible for students to organize themselves into study groups, share materials, and improve their ability to communicate with both their classmates and their teachers(Yuan et al., 2023). Additionally, the integration of multimedia content, such as videos and animations, has been shown to improve students' retention of information and overall learning outcomes (Gunasinghe et al., 2020; Shahzad et al., 2024).

Simultaneously, artificial intelligence has emerged as a powerful tool for enhancing educational processes. AI technologies, such as adaptive learning systems, virtual tutors, and AI-driven analytics, have transformed the way students learn and educators teach. As a result of the ability of AI systems to tailor learning experiences and deliver feedback in real time, McKinsey & Company estimates that the implementation of AI in educational settings has the potential to increase student performance by as much as twenty percent(Fatmawati et al., 2024).

AI has also proven to be an effective means of facilitating smart learning, an approach that leverages technology to make education more accessible, personalized, and efficient. Smart learning enables students to learn anytime and anywhere, using digital tools that cater to their individual needs. Platforms like Khan Academy and Coursera exemplify this by offering a wide array of courses that students can complete at their own pace, with tailored content recommendations powered by AI (Shahzad et al., 2024).

Recent research highlights the potential for combining AI and social media to create dynamic learning environments that improve academic performance. AI can analyze student interactions on social media, providing insights into their learning behaviors, preferences, and challenges. By harnessing this data, educators can design more effective teaching strategies that align with students' needs, fostering a more personalized and engaging learning experience (Shahzad et al., 2024). For example, Harvard University has implemented AI-powered learning platforms that use data from students' social media activities to recommend personalized learning resources. Similarly, institutions like Gadjah Mada University in Indonesia have used social media to create academic support communities, where students can collaborate and share knowledge, leading to improved academic performance (Asari et al., 2023; Fan, 2023; Ye & Li, 2024).

Students' academic performance, which is defined as their capacity to comprehend, apply, and critically analyze material, is impacted by a variety of circumstances, both internal and external to the student. Sekolah Tinggi Ilmu Kesehatan (STIKES) ARJUNA Laguboti is dedicated to cultivating proficient, professional, and exceptionally competitive healthcare practitioners. The university prioritizes academic excellence through the adoption of a competency-based curriculum and innovative pedagogical methods that merge theory with practice. Students at STIKES ARJUNA Laguboti exhibit exceptional academic achievement as evidenced by a high cumulative GPA, prompt graduation rates, and active involvement in research and scientific publications. Academic assistance initiatives, including intense mentoring, clinical skills training, and tutoring, substantially enhance student achievement.

STIKES ARJUNA Laguboti offers extensive educational assistance, featuring state-of-the-art laboratories, a digital library, and an e-learning platform that ensures convenient access to academic resources. Moreover, partnerships with hospitals, community health clinics, and other healthcare entities provide students with actual experience in the application of their expertise. Students participate actively in diverse academic competitions at national and international levels. Moreover, student research in the healthcare sector is expanding, with numerous projects published in scientific publications and presented at seminars and conferences.

Motivating students and providing them with learning tools are examples of internal influences, whereas social environment, family support, and the quality of instruction are examples of external factors(Krishnan & Loon, 2018; Shahzad et al., 2024). Studies indicate that AI and social media, when integrated effectively, can significantly improve students' academic performance by providing tailored learning experiences, fostering collaborative environments, and increasing access to educational resources (Shahzad et al., 2024).

As AI technologies continue to evolve, their integration with social media is likely to further enhance educational outcomes. For example, AI-powered adaptive learning systems can monitor students' progress and suggest learning materials that match their academic needs. Meanwhile, social media can serve as a platform for peer support, discussion, and collaboration, allowing students to engage with their peers and instructors in real time (Shahzad et al., 2024; Yuan et al., 2023).

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Albert Bandura began developing what is now known as the Social Learning Theory (SLT) in 1971(Bandura, 1971), underscores the importance of learning through observation, imitation, and modeling. It asserts that individuals can learn not only through direct experiences but also by observing the actions of others and the resulting consequences. In educational contexts, SLT serves as a theoretical foundation for understanding how social interactions and the environment influence the learning process. Bandura identifies four key components of social learning: attention, retention, motor reproduction, and motivation. These components highlight the necessity for students to focus on effective uses of technologies like AI and social media, remember this information for future use, replicate learned behaviors in their academic activities, and feel motivated to apply these technologies to enhance their academic performance and mental well-being(Shahzad et al., 2024).

As part of this investigation, the social learning theory is being applied to research the ways in which intelligent technologies, such as artificial intelligence and social media, may be able to enable learning experiences that are more efficient and flexible. By enabling social interactions that are enhanced by AI—such as collaborative features on social media platforms or intelligent tutoring systems—students can benefit from a learning environment that promotes engagement and knowledge retention. SLT provides a robust framework for understanding the interplay between students and their environment, illustrating how technology can be harnessed to support and improve the learning process, ultimately leading to better academic outcomes and overall student well-being(Shahzad et al., 2024).

The term "academic performance" refers to the measurable outcomes that students achieve in their educational pursuits. These outcomes are often evaluated through grades, tests, and other academic accomplishments(Shahzad et al., 2024). Academic performance serves as a core indicator of educational success and a critical focus of educational research, as it encapsulates not only students' mastery of subject material but also their ability to apply acquired knowledge in practical contexts. Understanding the determinants of academic performance is vital for educators, policymakers, and researchers to enhance student outcomes and contribute to improved educational practices (Kumar et al., 2022).

Numerous factors influence academic performance, including individual attributes such as motivation, cognitive abilities, and emotional intelligence, as well as external factors such as family support, school resources, and the broader socio-cultural environment (Shahzad et al., 2024). The intersection of technology and education has become a growing area of study, with artificial intelligence (AI), social media, and smart learning emerging as significant contributors to academic performance. These technological advancements have transformed traditional educational settings, providing personalized learning experiences and promoting collaborative and interactive learning environments.

Through the provision of individualized educational experiences that are tailored to the specific requirements of each student, artificial intelligence has transformed the field of education. According to Akavova et al., (2023), educational technologies that are powered by artificial intelligence are able to assess student data in order to determine strengths, limitations, and learning preferences, which provides the opportunity for more successful instructional tactics. A number of uses of artificial intelligence in education include adaptive learning systems, automated grading, individualized feedback, and intelligent tutoring systems. These applications are designed to assist students in comprehending difficult concepts and improving their academic performance.(Shahzad et al., 2024).

According to Shahzad et al., (2024), AI supports the academic journey of students by offering personalized learning paths and addressing gaps in knowledge through real-time analysis of progress. This capacity for customization allows for the adjustment of learning materials and the provision of relevant resources, improving students' engagement and outcomes. AI systems can also automate administrative tasks, freeing educators to focus on student interaction and instruction, thus enhancing the overall learning environment.

The development of abilities such as critical thinking and problem-solving, which are crucial for academic achievement, can be facilitated through the use of AI-driven platforms, which are also capable of imitating real-world circumstances. It is anticipated that the incorporation of artificial intelligence into educational institutions would play a significant part in enhancing the academic performance of

students and preparing them for the problems that they will face in the professional world in the future(Akavova et al., 2023).

Social media platforms such as Facebook, TikTok, YouTube, Twitter, and LinkedIn have become increasingly important in the educational landscape, offering students access to a wide range of academic resources. These platforms facilitate knowledge sharing, peer-to-peer learning, and real-time communication between students and educators (Yuan et al., 2023). The availability of online courses, instructional videos, and educational content on social media enables students to supplement their formal education and gain new perspectives on their academic subjects.

Social media fosters collaborative learning environments, where students can discuss academic topics, seek assistance from peers, and share educational materials. According to Saini & Mir, (2023), students who actively engage with educational content on social media often demonstrate improved academic performance due to the additional resources and support they receive outside of the traditional classroom setting.

However, the impact of social media on academic performance is nuanced. While social media can enhance learning by providing access to information, it can also serve as a source of distraction for students. Therefore, educators and institutions must encourage the responsible use of social media for educational purposes to maximize its benefits while minimizing potential negative effects on students' academic focus and productivity(Shahzad et al., 2024).

Smart learning refers to the integration of advanced technologies, including AI and the Internet of Things (IoT), into educational settings to create personalized, interactive, and collaborative learning experiences. Smart learning environments utilize data analytics, AI, and social media platforms to enhance student engagement, tailor learning experiences, and improve academic outcomes (Zhang et al., 2021).

The flexibility of the smart learning approach to adjust to the specific requirements of each individual student is one of its defining characteristics. Systems that are powered by artificial intelligence, for instance, are able to analyze the performance of students in real time and modify the pace, substance, and structure of instruction to accommodate the preferences of individual students(Zhang et al., 2021). Students are able to work at their own pace, concentrate on areas in which they have the greatest need for improvement, and gain access to materials that are in line with their academic objectives when they have this level of customization for their assignment.

According to Shahzad et al., (2024), the integration of AI and social media within smart learning environments creates a holistic educational ecosystem that supports critical thinking, problem-solving, and collaborative learning. This system fosters an environment where students can engage with both educators and peers, access personalized learning resources, and receive feedback that is tailored to their academic progress.

A comprehensive framework for enhancing academic achievement can be achieved through the integration of artificial intelligence (AI) and social media into intelligent learning environments. The capability of artificial intelligence to process and analyze massive datasets makes it possible to develop learning systems that are tailored to the specific requirements of individual pupils. By delivering customized content and assessments, AI can help students overcome academic challenges and develop skills that are essential for academic success (Shahzad et al., 2024).

At the same time, social media platforms offer a space for collaboration, knowledge sharing, and community building. Through these platforms, students can engage in peer-to-peer learning, seek support from educators, and participate in academic discussions that enhance their understanding of course materials. The synergy between AI and social media in smart learning environments creates a dynamic, student-centered approach to education that promotes higher academic achievement (Yuan et al., 2023).

In the framework of smart learning, the purpose of this study is to investigate the influence that artificial intelligence and social media have on academic performance. Specifically, it will examine how these technologies influence students' engagement, learning behaviors, and overall academic

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success. By analyzing the case of students at STIKES ARJUNA Laguboti in Sumatra Utara, this research seeks to provide insights into the potential of AI and social media to transform education in Indonesia and beyond. This investigation is guided by the following primary research questions:

1. How does artificial intelligence influence academic performance, and how is this relationship moderated by smart learning?
2. What is the relationship between social media usage and academic performance, and to what extent is this relationship moderated by smart learning?
3. How do artificial intelligence and social media jointly influence academic performance, and how does smart learning moderate these relationships?

Through the examination of these concerns, this research will make a contribution to the expanding body of knowledge concerning the nexus of technology, education, and academic achievement. It will also provide insightful information that is beneficial to students, as well as to policymakers and educators.

2. METHOD

The research methodology utilized in this study is a quantitative research design, and the data collection method utilized is a survey. The use of a straightforward random sampling method was employed in the process of developing and distributing a questionnaire (Nguyen et al., 2021). Taking this strategy guarantees that every person of the population that is being targeted has an equal opportunity to be picked, which helps to reduce the possibility of selection bias and improves the sample's ability to be representative of the population.

The distribution of the questionnaire was conducted both online via survey platforms (e.g., Google Forms) and through WhatsApp broadcasts, which included a link to the survey. This dual approach was adopted to facilitate efficient data collection and to encourage participation among respondents. Participants were given a specified timeframe to complete and submit their responses, ensuring timely data acquisition (Nguyen et al., 2021).

The study sample is comprised of 225 individuals who came from three different study programs at STIKES ARJUNA. These programs include the Bachelor of Pharmacy program, the Diploma program in Pharmacy and Nursing, and the Bachelor of Pharmacy program. Respondents are students who are in their last year or their second semester of school. The selection of participants was carried out through the use of a random sample technique in order to guarantee representativeness across a variety of demographics, including gender, age, and academic programs.

After the data have been obtained, they are analyzed with SmartPLS in order to carry out descriptive and inferential analysis. Descriptive statistics summarize the demographics and main variables, while inferential statistics are employed to test hypotheses regarding the relationships between internet usage, familiarity with ChatGPT, and academic performance. The analysis aims to identify significant trends and correlations within the data(Hair et al., 2019).

Tabel 1. *Demographic Profile of Respondents*

Characteristic	Category	Number of Respondents	Percentage (%)
Gender	Male	34	15.1%
	Female	191	84.9%
Age	17-19 years	59	26.2%
	20-22 years	149	66.2%
	23-25 years	16	7.1%
	> 26 years	1	0.4%

Characteristic	Category	Number of Respondents	Percentage (%)
Study Program	Bachelor's in Pharmacy	105	46.7%
	Diploma in Pharmacy	42	18.7%
	Diploma in Nursing	78	34.7%
Daily Internet Usage	1-2 hours	34	15.1%
	2-4 hours	70	31.1%
	4-6 hours	55	24.4%
	6-8 hours	31	13.8%
	> 8 hours	35	15.6%
WiFi Connection at Home	Yes	186	82.7%
	No	39	17.3%
Monthly Internet Quota	Less than 3GB	6	2.7%
	3-5GB	8	3.6%
	7-10GB	14	6.2%
	10-15GB	31	13.8%
	15-20GB	58	25.8%
	More than 20GB	108	48.0%
Familiar with ChatGPT	Yes	165	73.3%
	No	60	26.7%
Able to Use ChatGPT	Yes	150	66.7%
	No	75	33.3%
Ease of Creating Prompts in ChatGPT	Yes	94	41.8%
	No	131	58.2%
Ownership of Laptop/Personal Computer	Yes	130	57.8%
	No	95	42.2%
Most Frequently Used Social Media	Instagram	101	44.9%
	TikTok	82	36.4%
	Facebook	14	6.2%
	WhatsApp	14	6.2%
	YouTube	12	5.3%
	Twitter/X	2	0.9%
	LinkedIn	0	0.0%

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The demographic profile of respondents reveals key characteristics that offer insights into their backgrounds and digital habits. A significant majority of the respondents are female (84.9%), with the largest age group being 20-22 years old (66.2%). Most participants are pursuing degrees in pharmacy (46.7%) or nursing (34.7%). In terms of internet usage, a considerable portion of respondents (31.1%) report using the internet for 2-4 hours daily, while a notable majority (82.7%) have WiFi connectivity at home. Additionally, more than half of the respondents (48.0%) have a monthly internet quota exceeding 20GB, indicating a strong reliance on online resources.

The data also highlights respondents' familiarity and engagement with technology, particularly with platforms like ChatGPT. A substantial number (73.3%) are familiar with ChatGPT, and 66.7% are able to use it effectively. However, challenges persist, as only 41.8% find it easy to create prompts within ChatGPT. Regarding technology ownership, 57.8% own a laptop or personal computer, facilitating their online activities. Social media usage is dominated by Instagram (44.9%) and TikTok (36.4%), showcasing a preference for visually-driven platforms. These demographic insights underscore the interplay between education, technology use, and social media engagement among the respondents.

3. RESULTS AND DISCUSSION

The analysis of the data collected from STIKES ARJUNA Laguboti reveals several significant findings regarding the interplay between Artificial Intelligence (AI), Smart Learning, Social Media, and Academic Performance. The results demonstrate that Smart Learning and Social Media are both significant predictors of Academic Performance. However, while AI positively influences Smart Learning, its direct impact on Academic Performance appears non-significant. These results provide crucial insights into how AI, Smart Learning, and Social Media interact to shape educational outcomes.

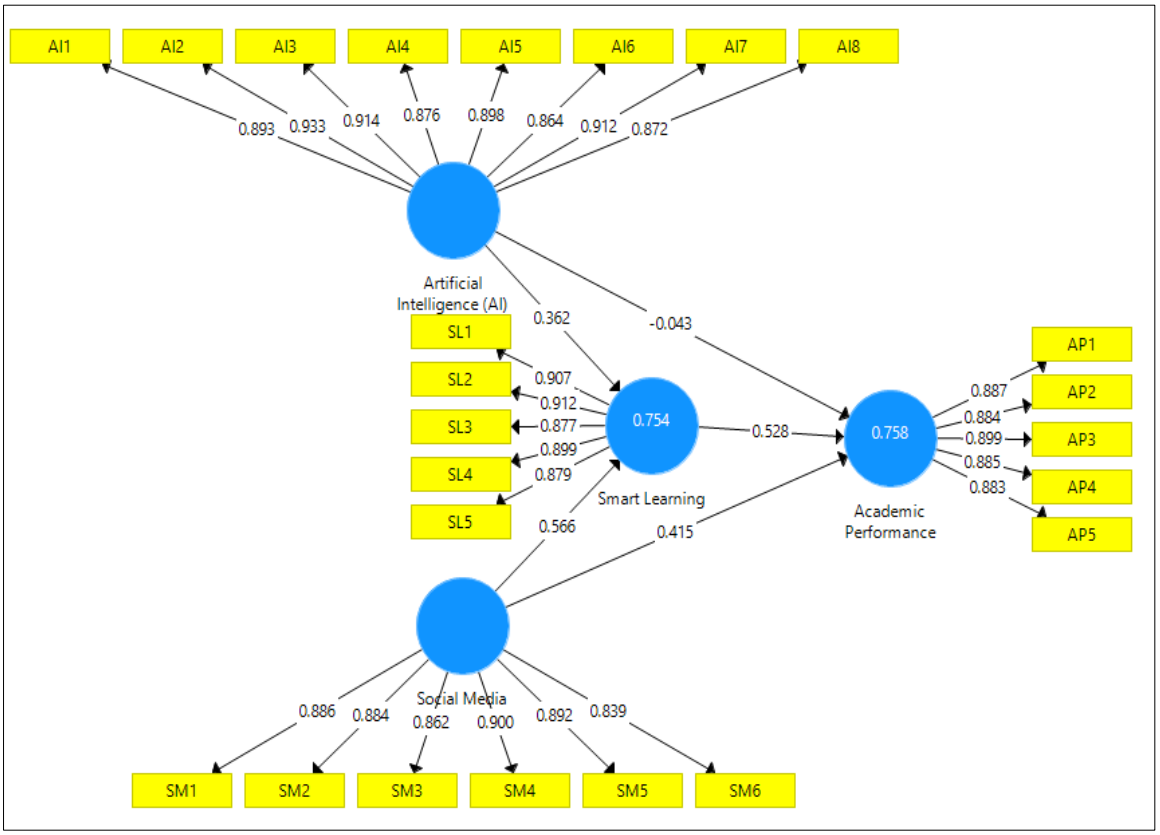

Figure 1. *Output PLS Algorithm*Table 2. Validity Test Results

Tabel 2 *Run Indicator Pls Algorithm*

Variables	Indicator	score	CR	AVE
Artificial Intelligence (AI)	AI1	0,893	**0,970**	**0,802**
	AI 2	0,933		
	AI 3	0,914		
	AI 4	0,876		
	AI 5	0,898		
	AI 6	0,864		
	AI 7	0,912		
	AI 8	0,872		
Social Media	SM1	0,907	**0,953**	**0,770**
	SM2	0,912		
	SM3	0,863		
	SM4	0,9		
	SM5	0,892		
	SM6	0,839		
Smart Learning	SL1	0,902	**0,953**	**0,801**
	SL2	0,912		
	SL3	0,877		
	SL4	0,879		
Academic Performance	AP1	0,887	**0,849**	**0,788**
	AP2	0,884		
	AP3	0,889		
	AP4	0,883		

The results of the run indicators are presented in Table 2, which compares them to the latent variables that are associated with the study. Specific indications and the values that correlate to them are associated with each variable, which includes Artificial Intelligence (AI), Social Media (SM), Smart Learning (SL), and Academic Performance (AP). The values are the factor loadings, which may be thought of as an indication of the degree to which each indicator is related to the latent variable that corresponds to it. In addition, the values of Composite Reliability (CR) and Average Variance Extracted (AVE) are presented for every variable. These characteristics serve to illustrate the constructs' internal consistency and validity. Taking the AI variable as an example, it demonstrates a high level of reliability, as evidenced by its CR value of 0.970 and its AVE value of 0.802. These values indicate that there are strong correlations among its indicators. The robustness of the measuring methodology that was applied in this study is further reinforced by the fact that other constructs, such as Social Media and Smart Learning, also demonstrate satisfactory reliability and validity. This is demonstrated by the respective CR and AVE values for each item.

Tabel 3. *Path Coefficients*

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Artificial Intelligence (AI) -> Academic Performance	-0,043	-0,040	0,092	0,464	**0,642**
Artificial Intelligence (AI) -> Smart Learning	0,362	0,361	0,100	3,622	**0,000**
Smart Learning -> Academic Performance	0,528	0,552	0,146	3,629	**0,000**
Social Media -> Academic Performance	0,415	0,391	0,172	2,417	**0,016**

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	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Social Media -> Smart Learning	0,566	0,566	0,097	5,804	**0,000**

With a path coefficient of 0.362 and a p-value of 0.000, the association between artificial intelligence and smart learning is not only significant but also positive, as shown in Table 3. The results of this study indicate that the incorporation of artificial intelligence technology into the educational process results in a considerable improvement of Smart Learning techniques. AI tools facilitate personalized learning experiences by adapting content to meet individual student needs. This adaptive approach can lead to improved engagement and comprehension, reinforcing the importance of incorporating AI into educational frameworks to optimize learning outcomes.

A path coefficient of 0.528 and a p-value of 0.000 were found to indicate that Smart Learning has a significant positive influence on Academic Performance. This was demonstrated by the fact that the p-value was 0.000. Based on this link, it can be deduced that the deployment of Smart Learning tactics, which include interactive media, the integration of technology, and new pedagogical approaches, contributes to improved academic outcomes among students. In light of these findings, it is clear that Smart Learning is effective in producing an educational experience that is both more interesting and more effective, which ultimately results in improved academic performance.

In addition, the investigation demonstrates that the use of social media platforms plays a significant part in the improvement of both Smart Learning (path coefficient 0.566, p-value 0.000) and Academic Performance (path coefficient 0.415, p-value 0.016). Due to the positive impact of social media, it is believed that platforms that allow for the sharing of knowledge, the discussion of issues, and the collaboration with peers contribute to an environment that is more conducive to learning. This interaction not only helps students develop a feeling of community, but it also assists them in their academic endeavors, highlighting the importance of educators making use of social media as a vital educational tool.

With a coefficient of -0.043 and a p-value of 0.642, the findings suggest that there is a direct association between artificial intelligence and academic performance for which there is no statistically significant relationship. Despite the fact that artificial intelligence has the potential to improve Smart Learning, this unexpected discovery suggests that it does not directly lead to greater academic achievements. This link may be influenced by a number of factors, such as the students' level of acquaintance with artificial intelligence technology, their ability to make effective use of these tools, and the broader educational context in which they are employed. To fully use the potential of artificial intelligence in educational contexts, it is essential to have a solid understanding of these elements.

There is a non-significant association between the use of artificial intelligence and academic performance, and the demographic profile of the respondents provides insights that may explain this relationship. Most of the people who responded are students in the Bachelor of Pharmacy program, which may place a greater emphasis on having a comprehensive understanding of the subject matter than on making use of AI tools. It is also possible that students are not making efficient use of artificial intelligence technologies to enhance their academic pursuits, given that the average internet usage is mostly for activities that are not related to academics. Given this disparity, it is clear that focused interventions are required to enhance the digital skills of students and to support the efficient application of artificial intelligence in the classroom.

In conclusion, the findings of this investigation offer significant assistance in comprehending the intricate connections that exist between artificial intelligence, smart learning, social media, and academic performance. The direct influence that artificial intelligence has on academic performance is still unclear, despite the fact that it has a good impact on smart learning. When educational institutions are working to improve students' academic performance, it is vital for them to place a strong emphasis on the incorporation of Smart Learning methodologies and the utilization of social media. When it comes to realizing the benefits of emerging technologies in educational settings, it will be essential to address the skills gap that exists in the application of artificial intelligence.

Discussion

The results of this research offer a complete knowledge of the ways in which artificial intelligence (AI), smart learning, and social media interact with one another and influence the academic performance of students attending STIKES ARJUNA Laguboti. The significant positive relationship between AI and Smart Learning underscores the importance of integrating advanced technologies into educational frameworks. It is possible for artificial intelligence to personalize learning experiences and provide feedback that is targeted to the individual student, which can lead to increased student engagement and improved material comprehension (Fatmawati et al, 2024). It is for this reason that educators and policymakers ought to make the incorporation of AI technologies into educational programs a top priority in order to improve the efficiency of the teaching and learning processes.

The fact that Smart Learning has such a significant and positive impact on academic performance demonstrates how important it is to use innovative educational approaches. The findings indicate that educators can build an interactive and engaging learning environment that encourages students and leads to improved academic performance by adopting technology-enhanced learning practices. This environment can be created by educators (Gunasinghe et al , 2020). For this reason, educators should receive training on Smart Learning techniques as part of their professional development. This will enable them to effectively incorporate technology into their teaching practices (Kumar et al, 2022).

An additional significant result that emerged from this research was the role that social media plays as a facilitator of both effective learning and academic performance. The educational experience of students can be improved with the use of social media since it gives them the opportunity to participate in collaborative learning and to share information with one another. According to the fact that there is a favorable correlation between social media and academic performance, it is clear that participation on these platforms might be a factor in the achievement of these pupils. The incorporation of social media into educational institutions' learning techniques, the development of standards for the efficient utilization of social media, and the promotion of collaborative online projects that foster student involvement are all things that should be considered (Febriani et al, 2022).

The non-significant direct relationship between AI and Academic Performance raises important questions about the factors that influence this dynamic. It suggests that simply integrating AI into educational settings is insufficient to guarantee improved academic outcomes. Factors such as students' digital literacy, prior experiences with technology, and their overall approach to learning may play significant roles in determining how effectively AI tools are utilized. This finding calls for further research into the barriers students face in effectively using AI for academic purposes.

The demographic analysis reveals that a majority of respondents belong to the Bachelor of Pharmacy program, which may affect their engagement with AI technologies. The emphasis on rigorous curriculum requirements might lead to a lesser reliance on AI tools, as students prioritize mastering core material. Additionally, the average time spent on non-academic internet activities may hinder students from fully exploiting the potential benefits of AI in their studies. Addressing these challenges will require educational institutions to provide targeted support and resources that encourage the effective use of AI technologies in learning (Asari et al, 2023).

Further, the research reveals the lack of confidence and skills that students have when it comes to using artificial intelligence applications like ChatGPT. As a result of the fact that a sizeable proportion of respondents have reported having difficulty in making efficient use of artificial intelligence, it is absolutely necessary for educational institutions to make investments in training programs that improve digital literacy. Workshops and hands-on training sessions focused on providing students with the knowledge and abilities they need to make effective use of artificial intelligence in their academic endeavors could fall under this category (Yuan et al, 2023).

These findings throw light on the interconnectivity of artificial intelligence (AI), smart learning, and social media in the process of impacting academic accomplishment. To summarize, the findings of this research shed light on the interconnectedness of these three factors. Although AI has a good impact on Smart Learning, the direct affect that it has on academic performance is still difficult to understand. Educational institutions must place a strong emphasis on strengthening students' digital abilities,

supporting new teaching methods, and cultivating a collaborative learning environment through the use of social media to make the most of the potential offered by these technologies. Future studies must continue to investigate the complexities of these interactions to both improve educational practices and make the most of the application of technology in educational settings.

4. CONCLUSION

This study examined how AI and social media impact academic performance at STIKES ARJUNA Laguboti, Sumatra Utara. Results showed no significant relationship between AI use and academic performance, with a negative coefficient of -0.043 and a p-value of 0.642. Despite students' access to AI and active social media use, these technologies alone did not guarantee better outcomes, highlighting the need to consider other influencing factors.

Students' digital literacy emerged as crucial in maximizing AI benefits. Many lacked the skills to use AI effectively, and those with stronger academic backgrounds tended to perform better. This suggests that institutions must enhance digital literacy and provide training in technology use. To improve AI and social media integration in academics, STIKES ARJUNA should develop a tech-focused curriculum, incorporating AI applications and social media for learning. Hands-on training and faculty workshops will further strengthen students' ability to use these tools effectively.

Finally, expanding technology access on campu, such as improving internet connectivity and providing more computer, will enable better engagement with AI and social media. Collaborations with tech companies can also introduce students to advanced resources, better preparing them for a digital workforce while enhancing academic success..

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