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Artificial Intelligence and Social Media on Academic Performance and Mental Wellbeing: Students' Perceptions of the Impact of the Era of Smart Learning

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ABSTRACT

Background/Context: The integration of artificial intelligence (AI) and social media has significantly transformed how university students learn in the digital era. AI supports personalized learning, improves material comprehension, and enhances productivity, while social media facilitates academic collaboration. However, both also present challenges, such as decreased learning independence, social pressure, and mental health concerns.
Objective/Purpose: This study aims to analyze the impact of AI and social media use on students' academic performance and mental well-being.
Method: A quantitative cross-sectional design was employed. Data were collected using a Likert-scale questionnaire completed by 91 active university students. Descriptive statistics (mean, median, mode, standard deviation) and correlational analysis using Pearson's test, along with linear regression, were conducted with the support of Jamovi software.
Results: The findings reveal that AI positively contributes to learning effectiveness, motivation, and personalized content, while also reducing academic stress. However, excessive use may lower students' learning independence. Meanwhile, social media promotes academic and emotional interaction, but high-intensity use tends to increase anxiety, social pressure, and decreased concentration in learning.
Conclusion:AI plays a strategic role in improving educational quality, whereas social media requires mindful management to prevent negative effects on students' mental well-being. The study recommends digital literacy and time management strategies to maintain a healthy balance of technology use in higher education. well-being.

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INTRODUCTION

In the modern learning era, the integration of artificial intelligence (AI) and social media has changed the way education takes place. AI provides great opportunities through personalization of the learning experience, allowing students to get material according to their learning style and helping to understand difficult concepts faster (Fitri et al., 2023). It can also analyze learning patterns to provide relevant feedback to support academic performance (Oktavianus et al., 2023). However, reliance on AI risks degrading students' critical thinking skills, which can reduce their independence (Sitorus & Murti, 2024). In addition, the gap in access to technology is a challenge, especially for students with limited devices or resources (Juwita et al., 2015) .

Social media on the other hand has become an important part of student life. Besides making collaboration and information dissemination easier, social media helps build learning communities (Purwanto, 2024). However, overuse can trigger social pressure and self-comparison, often leading to

anxiety and depression (Maula et al., 2024). These negative impacts are exacerbated by reduced study time due to social media activities, which impacts academic performance (Syifa, 2024).

Various studies suggest the need for strategies to balance the benefits of technology with its potential negative impacts. Educational institutions are expected to adopt policies that support students' digital literacy and time management (Erwin et al., 2023). In addition, students need to be given the skills to use technology wisely so that they can maximize its benefits without compromising mental health or academic outcomes (Gleneagles et al., 2024; Wahyuni, 2024)

However, a gap in the existing literature lies in the limited research that simultaneously examines the interaction between artificial intelligence and social media on two interrelated aspects, namely students' academic performance and mental well-being. Most previous studies have focused on the impact of a single variable, such as the use of social media on mental health or the influence of technology on academic performance, without considering the influence of both factors simultaneously in the context of the artificial intelligence-driven era of smart learning.

This study chose to focus on artificial intelligence and social media as the main variables because they play an increasingly important role in modern education, which can have a significant impact on both aspects. This choice is also based on the fact that these two variables are increasingly relevant in the digital age, and their relationship to academic performance and mental well-being has not been explored holistically. Compared to previous research that tends to discuss the impact of one dimension only, our research seeks to fill the gap by analyzing both variables simultaneously to gain a more comprehensive understanding of the impact of technology in education, especially in the era of smart learning.

This research aims to understand students' views on the impact of AI and social media on learning, while providing practical recommendations. By digging deeper into how technology affects mental and academic well-being, it is hoped that more relevant and adaptive solutions can be formulated. Educational institutions, students and families need to work together to overcome the challenges that arise in this digital era, ensuring that technological transformation can be balanced and inclusive.

METHOD

The research method used is quantitative Descriptive Analysis to analyze data describing sample characteristics and student perceptions regarding the use of AI and social media, as well as their influence on academic performance and mental well-being. Correlational Analysis using Pearson correlation test or linear regression to see the relationship between independent variables (AI and social media use) and dependent variables (academic performance and mental well-being). In the cross-sectional design of this study, researchers observed and measured variables in the sample or population simultaneously. This design provides a description of the situation or condition of a population at a certain time without involving measurements over a long period of time. Using Jamovi in analyzing data with Jamovi, the process of creating, processing, and analyzing quantitative data becomes simpler and more accessible, even for users who are not experienced in statistical analysis (Fauzi & Hasanah, 2024).

The data collection technique in this study was a survey (questionnaire), respondents or research samples for this study were determined using a questionnaire as a research method. This study collected data from 91 respondents where the research subjects were university students. The sampling method used in this study is college students who actively use technology in learning (including the use of AI and social media) during a certain academic period.

The instrument used in this study is a questionnaire or questionnaire sheet. A questionnaire is a commonly used tool in survey research to collect data from respondents. Specific details of the questionnaire and its structure follow:

Tabel 1. Tabel Kisi-kisi Instrumen

No	Aspect / Sub-factor	Statement	Statement Number	Referensi
1.	Impact of Artificial Intelligence (AI) on Academic Performance	I feel that the use of AI-based apps helps me understand the subject matter faster.	1	(Chen & Xie, 2021)
		Artificial intelligence (AI) makes it easier for me to find additional relevant and quality learning resources.	2	
		I feel more motivated to learn because of AI-based technology that supports my learning.	3	
		AI allows me to learn in a more personalized way that suits my learning style.	4	
		The use of AI in learning makes me more productive in completing academic tasks.	5	
		AI helps me to identify my strengths and weaknesses in academics, so that I can improve my performance.	6	
2.	The Impact of Social Media on Academic Performance	Social media makes it easier for me to discuss and share knowledge with my classmates.	7	(Weidman & Kirtley, 2021)
		Social media is a useful reference source in obtaining information related to lessons or academic topics.	8	
		Social media use can help me stay connected with study groups or academic communities.	9	
		Using social media gives me the opportunity to explore creative ideas that are useful for my academic work.	10	
3.	The Impact of Artificial Intelligence (AI) on Mental Wellbeing	AI-based apps help me manage academic stress by providing me with stress management tips or techniques.	11	(Shameli & Lankarani, 2020)
		AI technology gives me access to online psychological support or counseling services that are beneficial for my mental well-being.	12	
		I feel calmer and less anxious about studying because of AI technology that facilitates the learning process.	13	
		Using AI for learning helps me feel more confident in my academic abilities.	14	
4.	The Impact of Social Media on Mental Wellbeing	Social media gives me a platform to interact and share experiences with my friends, which improves my mental well-being.	15	(Binns & Parker, 2021)
		Social media often causes me to feel	16	

anxious or depressed about my achievements compared to others.	
I feel that social media can be an effective tool to reduce feelings of loneliness or isolation.	17
Social media use makes me feel dissatisfied or anxious about my appearance more often.	18

Descriptive analysis was used to evaluate students' perceptions of the impact of artificial intelligence (AI) and social media on academic performance and mental well-being. The data covered several key aspects, namely the influence of AI on material comprehension, productivity, and academic stress management, and the impact of social media on collaboration, creativity, and social pressure. Once the data from the questionnaire was collected, each response was coded using a 1-5 Likert scale to facilitate data processing. Irrelevant or invalid data was removed for more accurate analysis. The analysis process was conducted by utilizing Microsoft Excel to calculate the mean of each variable, while Jamovi software was used to analyze other statistical measures such as median, mode, total score (sum), highest (max), and lowest (min) values.

The maximum and minimum values also give an idea of the range of perceptions. On statements related to the benefits of AI, the maximum value reached 5 (response "Strongly Agree"), indicating that some respondents strongly felt the positive benefits of AI. However, for some statements related to social media, the minimum value reached 1 (response "Strongly Disagree"), indicating that there were respondents who felt social media had a negative impact.

The data was collected using a Likert scale with the aim of assigning a score in the form of a scale to each statement in the questionnaire. The Likert Scale levels used are as follows (Isma et al., 2024):

Tabel 2. Skala Likert

Skala	Description
5	Strongly agree
4	Agree
3	Netral
2	Disagree
1	Strongly disagree

The scale facilitates data processing because each choice is assigned a numerical value, allowing for more accurate statistical analysis. The resulting data reflects respondents' attitudes objectively.

RESULTS AND DISCUSSION

In this study, the characteristics of respondents are described based on gender, age, and class. This information is important to provide an overview of the demographic distribution of research participants. This data can help in analyzing patterns and relationships between research variables and respondent profiles. The details of the respondents' characteristics are presented as follows:

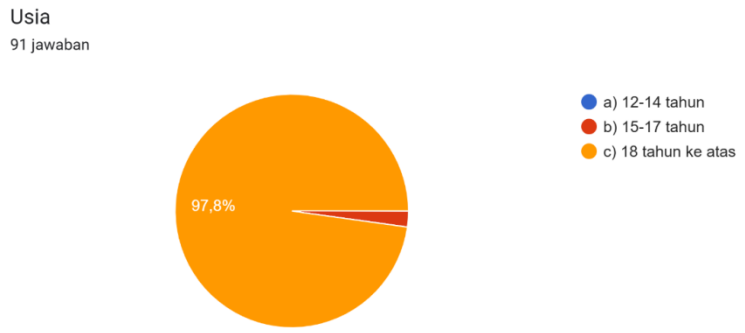

Figure 1.*Diagram Response characteristics*

The diagram shows that the majority of respondents (97.8%) were in the 18 years and above age category, while the rest were in the 15-17 years age category, with no respondents in the 12-14 years age group. This reflects the predominantly early-adult characteristics of the respondents, which is in line with the profile of the research population that focuses on college-level learning. This distribution demonstrates the relevance of the sample to the context of the study, which is to evaluate perceptions of learning in individuals with higher levels of cognitive maturity.

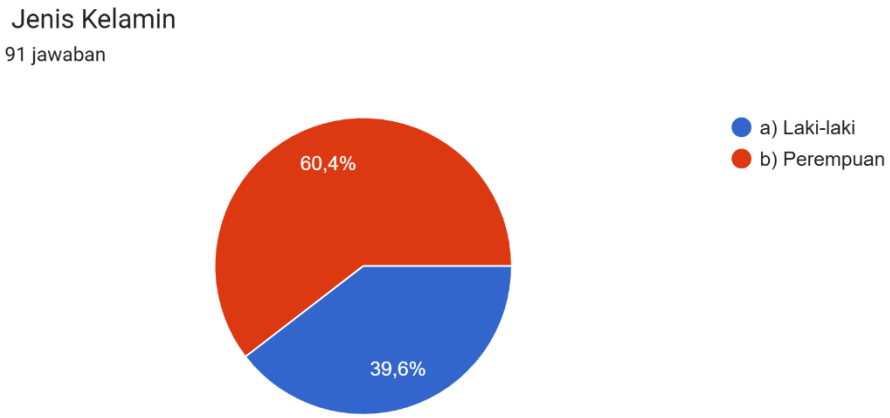

Figure 2.*Gender Distribution of Respondents*

The diagram shows the gender distribution of respondents, where the majority are female (60.4%), while males only account for 39.6% of the total 91 respondents. The dominance of women in this study reflects the possibility of a larger proportion of women's participation in the context of this study, which may influence perceptions or preferences related to learning. This distribution is relevant to consider the gender perspective in further analysis of the research results.

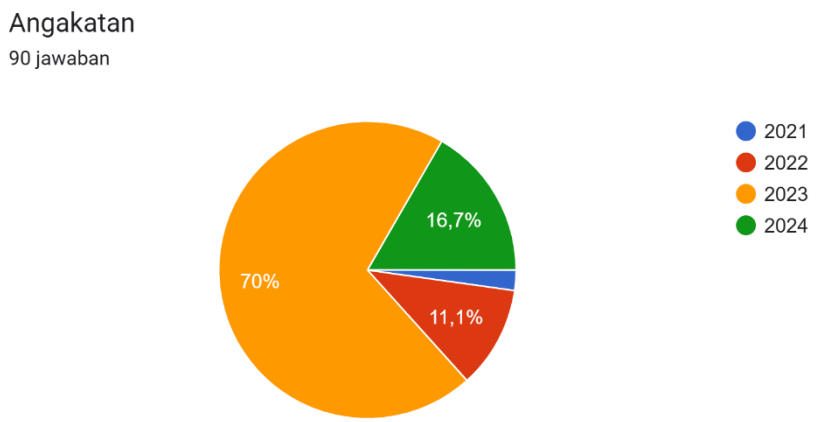

Figure 3.*Respondent Force Distribution diagram*

The diagram shows the distribution of respondents by batch, with the majority coming from batch 2023 (70%), followed by batch 2024 (16.7%), 2022 (11.1%), and 2021 (2.2%). The dominance of the class of 2023 indicates that the respondents tend to be from the middle level of their academic journey, which may influence their perception of learning, given their mature experience but still relevant to the active learning context. This distribution is relevant to the study as it reflects the representation of students at an important phase of their academic development.

Tabel 4. Descriptive Data Analysis Results

	Total rata Q	**Total rata PB**	**Total rata NQD**	**Total rata LQ**
N	90	90	90	90
Missing	0	0	0	0
Mean	4.03	4.03	3.55	3.48
Median	4.02	3.96	3.56	3.39
Mode	3.90	3.86	3.69	3.35
Sum	363	363	319	313
Standard deviation	0.184	0.189	0.135	0.198
Range	0.833	0.875	0.554	0.830
Minimum	3.67	3.75	3.25	3.17
Maximum	4.50	4.63	3.80	4.00

Descriptive Data Analysis Results present descriptive statistics for the study variables, including the mean, median, mode, and minimum and maximum values of students' perceptions of the impact of AI and social media. The data shows that the mean values of most variables are above 3.5, reflecting respondents' tendency to agree on the positive impact of technology on their learning. The median and mode also indicate the consistency of respondents' perceptions, with frequently occurring values close to the mean. The range between the minimum and maximum values indicates variation in individual perceptions, but in general the perceptions tend to be positive. These results corroborate the importance of technology in supporting student learning and well-being, despite variations in experience among respondents.

After the average value of the respondents' answers is known, the results are then interpreted based on Table 2, and the researcher creates a continuum line:

NJI (Interval Level Value):

$$NJI = \frac{\text{Nilai Max} - \text{Nilai Min}}{\text{Jumlah Kriteria Pernyataan}}$$

$$NJI = \frac{4-1}{4} = 0.75$$

It can be concluded that:
a. Minimum Index: 1
b. Maximum Index: 4
c. Interval: 4 - 1 = 3
d. Interval Distance: (4 - 1) ÷ 4 = 0.75

Table 3. Interval Scale Likert

Skala	Description
1,00–1,75	Very unfavorable
1,76–2,50	Not Good
2,51–3,25	Good
3,26–4,00	Very Good

This Likert scale is used to measure the respondent's perception or attitude towards a statement in the questionnaire. In order to help understand perceptions or qualities that are measured quantitatively.

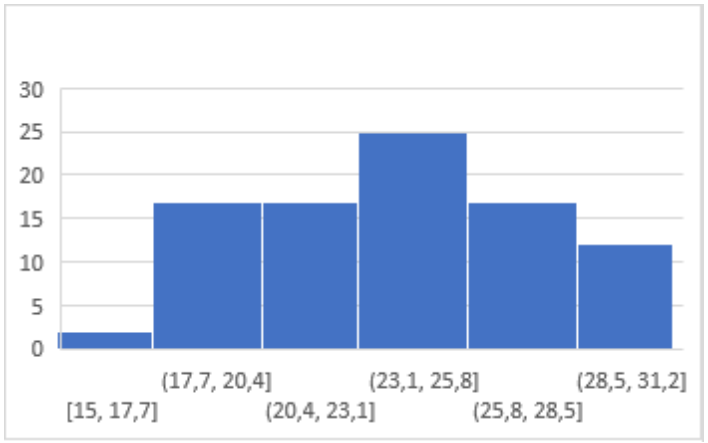

Figure 4. *AI and Social Media Relationship Chart*

This graph illustrates the relationship between students' perceptions of artificial intelligence and social media, and their impact on their academic performance and mental well-being. On the X-axis, we see a range of student perception categories, from the interval [15, 17.7], which indicates a low level of perception of the impact, to the interval (28.5, 31.2], which indicates a high level of perception. On the Y-axis, students' perceived impact is measured on a scale from 30 to 0, with 30 indicating a very large impact and 0 indicating a very small impact.

This graph shows that at lower perception intervals, students perceive a greater impact on their academic performance and mental well-being. In contrast, at higher intervals, the perceived impact is lower. This may indicate that students with lower perceptions of artificial intelligence and social media are more sensitive to its influence, whereas students with higher understanding feel the impact is not as strong.

Aspect/Factor Descriptive Data Table

The interpretation of this table shows that the descriptive data provides an initial overview of respondents' perceptions of the impact of artificial intelligence (AI) on academic performance,

covering aspects of material understanding, ease of access to learning resources, motivation, and personalization of learning. Values such as mean, median, mode, minimum and maximum reflect the tendency of positive responses with a diversity of opinions among respondents. This is in line with the literature which asserts that AI is able to improve learning effectiveness through personalization features and recommendations of relevant learning resources [16].

Table 5. Descriptive Data of Aspects/Factors

No	Item/Statement/ Question	Mean	Median	Modus	Minimum	Maksimum	Sum
Impact of Artificial Intelligence (AI) on Academic Performance							
1.	I feel that using AI-based apps helps me understand the subject matter faster	3.89	4.00	4.00	2	5	350
2.	Artificial intelligence (AI) makes it easier for me to find additional relevant and quality learning resources.	4.03	4.00	4.00	2	5	363
3.	I feel more motivated to learn because of AI-based technology that supports my learning.	3.73	4.00	4.00	1	5	336
4.	AI allows me to learn in a more personalized way that suits my learning style.	3.71	4.00	4.00	1	5	334
5.	The use of AI in learning makes me more productive in completing academic tasks.	4.97	5.00	5.00	4	5	447
6.	AI helps me to identify my academic strengths and weaknesses so that I can improve my performance.	3.67	4.00	4.00	1	5	330
The Impact of Social Media on Academic Performance							
1.	Social media makes it easier for me to discuss and share knowledge with my classmates.	4.01	4.00	4.00	1	5	361
2.	Social media is a useful reference source in obtaining information related to lessons or academic topics.	3.93	4.00	4.00	2	5	354
3.	Social media use can help me stay connected with study groups or academic communities.	4.00	4.00	4.00	2	5	361
4.	Using social media gives me the opportunity to explore creative ideas that are useful for my academic work.	3.89	4.00	4.00	2	5	358
The Impact of Artificial Intelligence (AI) on Mental Wellbeing							
1.	AI-based apps help me manage academic stress by providing me with stress management tips or techniques.	3.38	3.00	3.00	1	5	318
2.	AI technology gives me access to online psychological support or counseling services that are beneficial for my mental well-being.	3.36	3.00	3.00	1	5	302
3.	I feel calmer and less anxious about studying because of AI technology that facilitates the learning process.	3.70	4.00	4.00	1	5	333
4.	Using AI for learning helps me feel	3.58	4.00	4.00	1	5	322

	more confident in my academic abilities.						
The Impact of Social Media on Mental Wellbeing							
1.	Social media gives me a platform to interact and share experiences with my friends, which improves my mental well-being	3.44	4.00	4.00	1	5	309
2.	Social media often causes me to feel anxious or depressed about my achievements compared to others.	3.14	3.00	3.00	1	5	283
3.	I feel that social media can be an effective tool to reduce feelings of loneliness or isolation.	3.46	4.00	4.00	1	5	346
4.	Social media use makes me feel dissatisfied or anxious about my appearance more often.	3.07	3.00	3.00	1	5	276

The findings of this study indicate that artificial intelligence (AI) holds significant potential in enhancing academic performance through personalized learning. This result is consistent with (Putri et al., 2020), who emphasized that AI can tailor learning materials to individual needs, thereby improving learning effectiveness. Furthermore, the role of social media in facilitating academic collaboration aligns with (Kusuma & Pratama, 2022), who found that digital interactions accelerate discussions and expand access to information. Nevertheless, challenges such as technology dependency and social pressure remain critical issues, as highlighted by (Hidayat, 2021), who argued that limited digital literacy may exacerbate students' psychological stress.

Moreover, this study demonstrates that AI not only contributes to cognitive aspects but also supports stress management and enhances students' self-confidence. This finding reinforces the results of (Imran et al., 2024), who emphasized the effectiveness of AI in supporting time and task management. However, this study also reveals a gap, namely the limited exploration of the long-term impact of technology dependency on students' learning independence. This concern is in line with (Wibowo, 2020), who noted that the use of technology in education has not fully addressed its psychological and social consequences for students.

In conclusion, this study highlights the importance of balancing the use of AI and social media in education while opening avenues for future research focusing on digital literacy–based time management strategies. Such strategies are expected to create a balance between the benefits and risks of technology, ensuring that the use of AI and social media in educational settings remains sustainable and adaptive.

CONCLUSIONS

This research shows that artificial intelligence (AI) has a significant role in improving students' academic performance through personalized learning and increased productivity. Social media also facilitates academic collaboration and access to relevant information. To achieve these findings, the approach used included analyzing relevant literature, surveying students to measure the impact of technology use, and observing mental well-being. This methodology provides a holistic insight into the influence of technology in education.

For future research, it is recommended to delve deeper into interventions such as digital literacy training to help students manage technology optimally without compromising mental health. Educational institutions need to integrate digital literacy programs with a focus on time management and reducing dependence on social media. In addition, longitudinal studies can be conducted to observe the long-term impact of technology on academic performance and mental well-being, so that more comprehensive solutions can be formulated.

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