Artificial Intelligence in Education: Evaluate its Effect on Student Satisfaction and Readiness to Learn

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Abstract

Background: The integration of artificial intelligence (AI) in education presents an opportunity to significantly boost student satisfaction through personalized learning experiences. AI-powered tools can adapt educational content to fit the individual needs and preferences of students. **Aim:** To evaluate the effect of using artificial intelligence in education on student satisfaction and readiness to learn. **Research Design:** A descriptive correlational research design was used to conduct the current study. **Study Sample:** A convenient sample of nursing students from the (3rd and 4th year) who enrolled in the (2024-2025 academic year). Faculty of Nursing. **Setting:** The current study was conducted at Nursing College-Misr University for Science and Technology. **Tools:** Data was collected by using three tools; Personnel Characteristics Data Sheet-AI in Education Assessment Questionnaire-AI on Student Satisfaction in Education Questionnaire -AI on Student Readiness to Learn Questionnaire. **Results:** There was a significant positive correlation ($p < 0.001$) between student satisfaction and readiness to learn and the use of AI in education. Age, academic standing, and the amount of time spent online for learning were all substantially correlated with satisfaction and preparedness. With ChatGPT being the most widely used tool, most students expressed neutral to favourable opinions**. Conclusion:** Facilitating individualized learning and prompt feedback, integrating AI into nursing education improves student satisfaction and preparedness. To optimize its advantages, ethical policies, training, and equitable access are necessary. **Recommendations**: Conscious integration of AI in education can enhance students' satisfaction and readiness to learn, ultimately improving their academic experience and outcomes.

Keywords: Artificial Intelligence, Education, Student Satisfaction & Readiness to Learn

Introduction

Artificial Intelligence (AI) has emerged as a transformative force across various sectors, including education. In educational settings, AI is revolutionizing teaching methodologies, assessment practices, and learning environments through its capacity for automation, personalization, and data-driven decision-making. The adoption of AI technologies promises to enhance learning efficiency, engagement, and accessibility. As institutions increasingly integrate AI into their pedagogical frameworks, a comprehensive understanding of its implications, benefits, and challenges is crucial **(Luckin et al., 2022).**

Artificial Intelligence (AI) refers to the technology that allows machines and computers to replicate human intelligence. It enables systems to perform tasks that require human-like decision-making, such as learning from data, identifying patterns, making informed choices and solving complex problems. AI improves continuously by utilizing methods like machine learning and deep learning **(Luckin et al., 2022).**

AI has the potential to improve education, it also brings several significant drawbacks, such as concerns about data privacy, algorithmic bias, and the digital divide. AI systems rely on vast amounts of personal data, which raises risks related to data breaches and misuse **(Selwyn, 2019)**. Additionally, if AI algorithms are trained on biased data, they may reinforce existing inequalities in education, potentially disadvantaging certain student groups **(O'Neil, 2022)**. The reliance on technology can also lead to less human interaction in the learning process, which could hinder the development of social and emotional skills essential for well-rounded education **(Heffernan & Heffernan, 2020)**. Ultimately, the digital divide may exacerbate existing inequalities, as students from underprivileged backgrounds may lack access to the necessary technology **(Van Dijk, 2020)**.

Student satisfaction within the educational context refers to the overall enjoyment and positive perception students have regarding their learning experiences. It encompasses various aspects of their academic journey, including the quality of instruction, the effectiveness of learning resources, the availability of support services, and the overall environment of the educational institution. Satisfaction is often measured by students' feelings of fulfilment, engagement, and achievement during their studies. Student satisfaction is closely linked to retention and success, reflecting how well the

educational system meets their needs and expectations. **(Tinto, 2020).**

The integration of AI in education presents an opportunity to significantly boost student satisfaction through personalized learning experiences. AI-powered tools can adapt educational content to fit the individual needs and preferences of students, offering learning platforms that adjust to their pace and style. This personalization helps students grasp material more effectively, boosting their confidence and engagement levels. **(Holmes et al., 2019)**

However, the impact of AI on student satisfaction isn't uniformly positive; some students might feel overwhelmed or disconnected from technology. Concerns also arise about the potential for AI to exacerbate educational inequalities, particularly for students who lack access to advanced technologies or struggle to adapt to digital learning environments. Additionally, relying on AI for feedback and assessment may limit human interaction, often essential for emotional support and motivation in education. AI can improve certain educational aspects, its success in enhancing student satisfaction relies on thoughtful integration into the learning process, with careful attention to ensuring equitable access and maintaining the human element of teaching. **(Holmes et al., 2019)**

Student readiness for learning refers to how prepared a student is to engage with and absorb new knowledge, skills, and experiences within an educational setting. This readiness encompasses cognitive, emotional, and motivational factors that enable students to participate effectively in learning activities. Readiness includes students' prior knowledge, skills, and abilities, as well as their self-regulation, motivation, and mindset, which collectively influence their success in a learning environment. **(Schunk, et al., 2022)**

In nursing education, readiness to learn with AI means that nursing students are fully prepared to employ AI technologies in healthcare contexts **(Buchanan et al., 2021).** This preparation involves cognitive understanding of AI applications, the ability to use AI-related technology, and ethical considerations surrounding AI-generated data **(Topol, 2021)**. It's crucial for nursing students to develop skills to interpret AI outputs **(Seibert et al., 2022)**. Additionally, student readiness reflects personal and environmental conditions that affect their learning capacity. Student readiness includes not only the learner's academic background but also their emotional state, such as levels of confidence and stress, as well as external factors like family support and access to resources. Thus, reading is a holistic concept, encompassing a variety of individual and contextual factors that influence how effectively a student can engage with educational content. **(Zhang, 2019).**

Integrating AI in education holds the potential to significantly enhance student readiness to learn by providing personalized, adaptive learning experiences that cater to individual needs. AI systems can evaluate a student's prior knowledge and learning pace, fostering greater engagement and motivation. AI-driven platforms can deliver real-time feedback, helping students understand concepts better and identify gaps in their knowledge. This personalized approach helps students feel more prepared and confident to tackle complex material, ultimately improving their overall readiness to learn. **(Johnson et al., (2020)**

In outline, the use of AI in education can profoundly impact both student satisfaction and readiness to learn by offering personalized, adaptive learning experiences tailored to individual needs and preferences. But challenges such as inconsistent access to technology and the necessity for digital literacy can create disparities in how effectively students benefit from AI, potentially hindering their overall learning readiness and satisfaction (**Holmes et al., 2022**).

Significance of Study

In real-world applications, AI is used in healthcare for diagnosing diseases, finance for imitation detection, e-commerce for personalized recommendations and transportation for self-driving cars. It also powers virtual assistants like Siri and Alexa, chatbots for customer support and manufacturing robots that automate production processes (**Norvig, 2021**).

Artificial Intelligence (AI) is a branch of computer science focused on creating systems capable of performing tasks that typically require human intelligence. These tasks include learning, reasoning, problem-solving, perception, and language understanding. AI systems use algorithms and large datasets to recognize patterns, make decisions, and improve their performance over time without being explicitly programmed for every scenario. The goal of AI is to replicate or simulate human cognitive functions in machines to enhance efficiency and automate complex processes **(Russell & Norvig, 2021).**

Studying the impact of AI on student satisfaction and readiness to learn lies in its potential to transform educational experiences, providing more personalized and adaptive learning pathways. AI-powered tools can tailor lessons to meet the unique needs of each student, enabling a customized learning experience. Research by **Perez et al., (2020)** highlights that 85% of students reported higher satisfaction when using AI-powered platforms because of the personalized

feedback they received, which helped them feel more connected to the learning process. By aligning content with students' needs and learning speeds, AI fosters a more engaging and rewarding educational experience.

Besides, AI plays a critical role in enhancing student readiness to learn. By assessing students' prior knowledge also, AI systems can identify gaps in understanding and recommend appropriate resources to address those gaps. A study by **Schunk et al.,** (2023) found that students using AI-powered learning systems showed a 25% increase in self-regulation skills, which are essential for academic success. In addition to improving satisfaction and readiness individually, AI also benefits educators by providing them with data-driven insights into student progress and performance. AI tools can help teachers identify students who are struggling or excelling, allowing for timely interventions or enrichment opportunities. According to **Holmes et al., (2021),** AI integration in classrooms led to a 20% improvement in student performance. By enabling early identification of learning challenges. The researcher looking forward to finding satisfaction, readiness, and uses among students in Nursing college. despite these benefits, there is a significant issue: many students and institutions, especially in countries that are developing, lack the necessary resources, training, and ethical frameworks to successfully integrate AI. This digital divide leads to unequal educational opportunities, with underprepared students finding it difficult to adopt AI tools, which may have a detrimental effect on their satisfaction and readiness to learn.

Material and Methods

Aim
The aim of this study is to evaluate the impact of using artificial intelligence in education on student satisfaction and readiness to learn

Research Question:
The following research questions were formulated to achieve the current study aim.
1. What is the effect of using artificial intelligence in education on student satisfaction?
2. What is the effect of using artificial intelligence in education on student readiness to learn?
3. Is there a relationship between using artificial intelligence in education and student satisfaction and readiness to learn?

Sample:
A convenient sample of nursing students from (3rd and 4th) academic levels who enrolled in the (2024-2025 academic year) Faculty of Nursing- Misr University for Science and Technology. The sample size can be calculated using the following formula:

n = Where, Z1-α/2 = is the standard normal variate, at 5% type 1 error it is 1.96, SD = standard deviation of variable and d = absolute error or precision. So,
n = = 174.6. Based on the above formula, the sample size required for the study is 175. A convenient sample of 175 students was used in the current study. The sample included all students from the third and fourth year of the Faculty of Nursing at Misr University for Science and Technology during the academic year 2024/2025. Data were collected using a Google Form questionnaire, and participation was voluntary from both male and female students.

Setting
This study was conducted in March 2025 at the Faculty of Nursing, Misr University for Science and Technology (MUST), Egypt. **Misr University for Science and Technology** is the first established private university in Egypt, founded in 1996. With a student population exceeding 20,000, and fourteen Faculties. MUST is widely recognized for the quality and impact of its academic programs, as well as its strong commitment to sustainability and continuous development. The university holds memberships in several prestigious academic organizations, including the Association of Arab Universities, the International Association of University Presidents, and the Association of African Universities, reflecting its active engagement on both regional and international levels. As one of MUST's distinguished academic institutions, **the Faculty of Nursing** is committed to preparing scientifically and professionally qualified nursing cadres. It aims to equip students with the knowledge and skills necessary to provide high-quality nursing care, utilize scientific research and technological innovations, address community health issues, and effectively compete in both local and regional healthcare settings.

Research Design
A descriptive correlational design was utilized to fulfill the aim of this study. A descriptive research design is a theory-based research design which is created to gather, analyze and presents collected data. By implementing an in-depth research design such as this, a researcher can provide insights into the why and how of research. A correlational research design is a non-experimental research design technique which helps researchers to establish a relationship between two closely connected variables (**Tonetti & Palmer, 2012**).

Data Collection Tools:
The current study data collected through using three tools were used namely, AI in Education Assessment Questionnaire, Student Satisfaction in Education Questionnaire, and Student Readiness to Learn Questionnaire

TOOL (I): AI in Education Assessment Questionnaire

This scale includes two parts. Part (I) related to personnel characteristics of the nursing students as age, gender, level, Part (II) was developed by Holmes, et al., (2019) to assess Artificial Intelligence (AI) in Education. **Structure & Dimensions**: 15 items divided into **five subscale** (3 items each):

AI Awareness and Familiarity: Assesses students' general knowledge and understanding of AI concepts. **AI Integration in Learning:** Measures how well AI is being incorporated into students' educational experiences. **AI's Impact on Teaching:** Evaluates how AI supports or influences teachers' performance. **Ethical and Social Considerations**–explores concerns about fairness, bias, and ethical issues in AI use. **Outlook:** Captures expectations regarding AI's role in education going forward.

▪ **Scoring System**: 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). **Total score range**: 15–75. Higher scores = stronger awareness, better integration, and more positive perception.

▪ **Validity & Reliability: Holmes et al. (2019)** reported the tool as **valid and reliable**. Factor analysis confirmed the five dimensions, and Cronbach's Alpha values were above **0.80** for the overall scale, indicating good internal consistency.

▪ **Use in Current Study**: This tool was applied to identify the general perception and knowledge of AI among nursing students, with results linked to their demographic variables and online learning behaviours.

TOOL (II): Student satisfaction in Education Questionnaire. Developed by **Popenici et al. (2017)** to measure the satisfaction of students with the overall quality of education, particularly after introducing AI technologies.

Structure & Dimensions: **10 items** covering multiple aspects of the learning experience: Teaching quality (clarity, effectiveness, support), Learning resources (AI platforms, online materials), Interaction with instructors and peers, and General satisfaction with the learning process.

▪ **Scoring system**: Each item is rated on a **five-point Likert scale**, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). High (4–5): Positive perception, high satisfaction. Neutral (3): Mixed or uncertain, and Low (1–2): Negative perception, dissatisfaction.

▪ **Tool validity: Popenici et al. (2017)** established content and construct validity. Previous research showed Cronbach's Alpha > 0.85 (excellent reliability).

▪ **Use in Current Study:** This tool was used to explore whether AI adoption improved students'

learning satisfaction, with correlations made to academic level, hours online, and device usage.

TOOL (III): AI in education on student readiness to learn. developed by **Spector et al. (2019)** to assess how ready students are to use AI tools in their learning. Readiness includes cognitive, motivational, and emotional preparedness.

Structure & Dimensions: **10 items** that measure: **Cognitive readiness** – prior knowledge, ability to use digital platforms, **Motivational readiness** – willingness and enthusiasm to use AI, **Emotional readiness** – confidence, reduced anxiety, openness to technology, and **Resource readiness** – access to devices and stable internet. **Scoring System**: 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). **Score interpretation**: High (4–5): High readiness, Neutral (3): Average readiness and Low (1–2): Low readiness or resistance to AI.

Tool validity: According to Spector, et al. (2019) this tool is valid and reliable, because Cronbach's Alpha test was (0.8) which indicates good test-retest reliability.

Ethical Considerations

The Nursing administration department permitted the study to be implemented in the academic setting. Participants were provided Approval by accepting the sharing of link of google form, that outlining the study's purpose, procedures, potential risks, and benefits. Before the study was conducted, ethical approval was granted by the university's ethical committee with ethical approval number **Code No.(6/4/2025) (48)** Further, an official letter obtained from the Faculty of Nursing- Misr University for Science and Technology vice dean of students and education affairs upon a letter issued including the aim of the study, the study sample and the investigators who collect the data. Participants have the right to withdraw at any time without giving any reason. Measures will be taken to ensure confidentiality, and they will be informed that the data collected will be used only for the purpose of the study

Procedure:

After the official letter obtained, the clear explanation about the aim and nature of the study outlined by the investigators to the study sample at the google form so each student participated individually to fill the questionnaires, can accepted it. Data collection starts on the 1st of March and goes on till the end of the month.

Google form Questionnaires distributed through 4th and 3rd academic years student at online platforms during their presence at the faculty, and after lectures time.

The answer of the form was fulfilled within 5 minutes for each student. It was translated into Arabic too to be easier.

Statistical Analysis
The data collected was tabulated by coding and entering the responses by using the statistical package for social science (SPSS) version 20. The descriptive statistics used such as the frequencies, percentage, mean and standard deviations. Also, the inferential statistics used such as analysis of variance (Chi – square/Fisher's exact test) where the level of significance at ($P<0.05$).

Results and data analysis

Table (1):Distribution of the personal characteristics data of the study sample (n=175)

	N	%
Age (Years)		
18 – 20	45	25.7
21 – 23	**123**	**70.3**
24 – 26	5	2.9
27 or more	2	1.1
Gender		
Male	67	38.3
Female	**108**	**61.7**
Academic level		
3rd	79	45.1
4th	**96**	**54.9**
How/ many hours do you spend online daily for Academic purposes?		
< 5	**126**	**72.0**
5 – 8	40	22.9
> 8	9	5.1
How many hours do you spend online daily for non-Academic purposes?		
< 5	60	34.3
5 – 8	**70**	**40.0**
> 8	45	25.7
Which AI applications do you use most frequently?		
ChatGPT	**165**	**94.3**
Copilot (Bing Chat)	44	25.1
Perplexity AI	10	5.7
Deepseek	7	4.0
Do you have any one of the following communication devices?		
Tablet	95	54.3
Smart phone	**139**	**79.4**
PC	59	33.7

Table (2): Association between the personal characteristics data of the study sample and Assessment of using AI in education. N=175

	N	%	N	%	N	%	Chi – square / Fisher's exact test	
							X^2	P
Age (Years)								
18 – 20	8	28.6	15	18.3	22	33.8		
21 – 23	19	67.9	63	76.8	41	63.1		
24 – 26	0	0.0	3	3.7	2	3.1		
27 or more	1	3.6	1	1.2	0	0.0	7.708	0.260
Gender								
Male	10	35.7	29	35.4	28	43.1		
Female	18	64.3	53	64.6	37	56.9	1.006	0.605
Academic level								
3rd	14	50.0	31	37.8	34	52.3		
4th	14	50.0	51	62.2	31	47.7	3.397	0.183
How many hours do you spend online daily for Academic purposes?								
< 5	28	100.0	66	80.5	32	49.2		
5 – 8	0	0.0	16	19.5	24	36.9		
> 8	0	0.0	0	0.0	9	13.8	36.208	<0.001**
How many hours do you spend online daily for non-Academic purposes?								
< 5	8	28.6	28	34.1	24	36.9		
5 – 8	9	32.1	31	37.8	30	46.2		
> 8	11	39.3	23	28.0	11	16.9	5.678	0.224
Which AI applications do you use most frequently?								
ChatGPT	26	92.9	78	95.1	61	93.8	0.236	0.889
Copilot (Bing Chat)	8	28.6	16	19.5	20	30.8	2.649	0.266
Perplexity AI	1	3.6	5	6.1	4	6.2	0.284	0.867
Deepseek	0	0.0	3	3.7	4	6.2	1.977	0.372
Do you have any one of the following communication devices?								
Tablet	10	35.7	43	52.4	42	64.6	6.799	0.033*
Smart phone	23	82.1	64	78.0	52	80.0	0.235	0.889
PC	4	14.3	29	35.4	26	40.0	5.979	0.050

Table (3): Association between the personal characteristics data of the study sample and Impact of using artificial intelligence in education on student satisfaction. N=175

	N	%	N	%	N	%	Chi – square / Fisher's exact test	
							X^2	P
Age (Years)								
18 – 20	9	20.9	11	16.7	25	37.9		
21 – 23	33	76.7	50	75.8	40	60.6		
24 – 26	0	0.0	4	6.1	1	1.5		
27 or more	1	2.3	1	1.5	0	0.0	13.074	0.042*
Gender								
Male	22	51.2	22	33.3	23	34.8		
Female	21	48.8	44	66.7	43	65.2	4.033	0.133
Academic level								
3rd	25	58.1	20	30.3	34	51.5		
th	18	41.9	46	69.7	32	48.5	9.884	0.007*
How many hours do you spend online daily for Academic purposes?								
< 5	41	95.3	53	80.3	32	48.5		
5 – 8	2	4.7	13	19.7	25	37.9		
> 8	0	0.0	0	0.0	9	13.6	36.860	<0.001**
How many hours do you spend online daily for non-Academic purposes?								
< 5	14	32.6	19	28.8	27	40.9		
5 – 8	15	34.9	31	47.0	24	36.4		
> 8	14	32.6	16	24.2	15	22.7	3.833	0.429

	N	%	N	%	N	%	Chi – square / Fisher's exact test	
							X^2	P
Which AI applications do you use most frequently?								
ChatGPT	40	93.0	62	93.9	63	95.5	0.309	0.857
Copilot (Bing Chat)	16	37.2	11	16.7	17	25.8	5.859	0.053
Perplexity AI	2	4.7	4	6.1	4	6.1	0.120	0.942
Deepseek	0	0.0	2	3.0	5	7.6	4.151	0.126
Do you have any one of the following communication devices?								
Tablet	21	48.8	35	53.0	39	59.1	1.170	0.557
Smart phone	33	76.7	56	84.8	50	75.8	1.921	0.383
PC	14	32.6	22	33.3	23	34.8	0.068	0.967

Table (4): Association between the personal characteristics data of the study sample and Impact of using artificial intelligence in education on student readiness N=175

	N	%	N	%	N	%	Chi – square / Fisher's exact test	
							X^2	P
Age (Years)								
18 – 20	9	24.3	12	16.7	24	36.4		
21 – 23	26	70.3	56	77.8	41	62.1		
24 – 26	0	0.0	4	5.6	1	1.5		
27 or more	2	5.4	0	0.0	0	0.0	17.199	0.009*
Gender								
Male	20	54.1	22	30.6	25	37.9		
Female	17	45.9	50	69.4	41	62.1	5.719	0.057
Academic level								
3rd	23	62.2	22	30.6	34	51.5		
4th	14	37.8	50	69.4	32	48.5	11.597	0.003*
How many hours do you spend online daily for Academic purposes?								
< 5	25	67.6	46	63.9	55	83.3		
5 – 8	12	32.4	19	26.4	9	13.6		
> 8	0	0.0	7	9.7	2	3.0	11.680	0.020*
How many hours do you spend online daily for non-Academic purposes?								
< 5	11	29.7	20	27.8	29	43.9		
5 – 8	12	32.4	32	44.4	26	39.4		
> 8	14	37.8	20	27.8	11	16.7	8.134	0.087
Which AI applications do you use most frequently?								
ChatGPT	32	86.5	69	95.8	64	97.0	5.380	0.068
Copilot (Bing Chat)	15	40.5	16	22.2	13	19.7	6.027	0.049*
Perplexity AI	1	2.7	5	6.9	4	6.1	0.840	0.657
Deepseek	1	2.7	1	1.4	5	7.6	3.638	0.162
Do you have any one of the following communication devices?								
Tablet	17	45.9	36	50.0	42	63.6	3.895	0.143
Smart phone	32	86.5	59	81.9	48	72.7	3.221	0.200
PC	10	27.0	21	29.2	28	42.4	3.647	0.161

Table (5): Correlation between using AI in education, student satisfaction and readiness

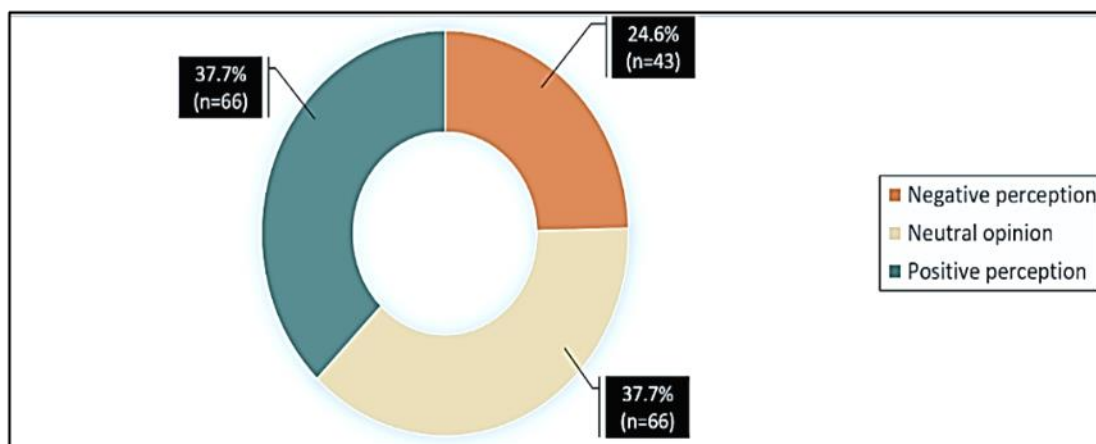|	Assessment of using AI in education		Impact of using artificial intelligence in education on student satisfaction		Impact of using artificial intelligence in education on student readiness	
	r	P	r	P	r	p
Assessment of using AI in education			0.693	<0.001**	0.697	<0.001**
Impact of using artificial intelligence in education on student satisfaction	0.693	<0.001**			0.732	<0.001**
Impact of using artificial intelligence in education on student readiness	0.697	<0.001**	0.732	<0.001**		

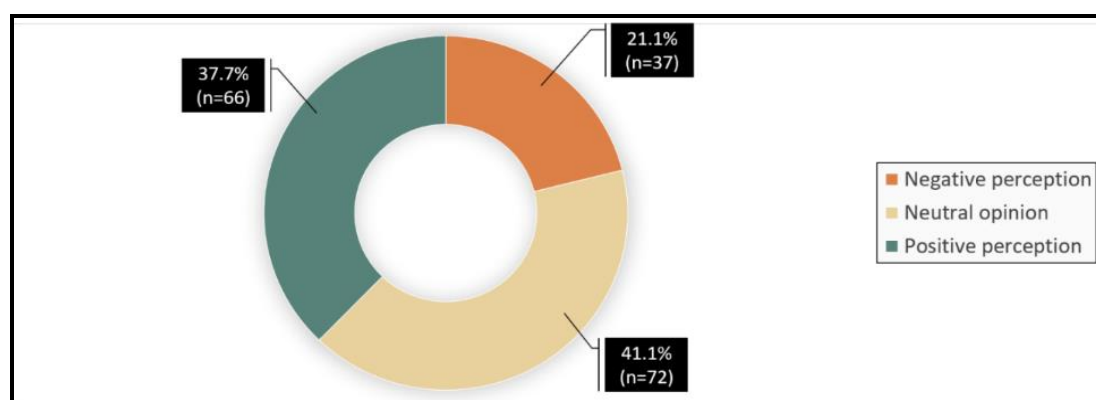**Figure (1): Assessment of using AI in education**

Figure (2): Impact of using artificial intelligence in education on student satisfaction

Table (1): Shows that the highest percentage (70.3%) of the study sample was in age group ranged between (21 – 23) years while the least percentage (1.1%) was in age group 27 years or more. Most of the group study sample (61.7%) were female while (38.3%) were male. The table also illustrated that (54.9%) of the study samples were enrolled in 4th academic level while (45.1%) were in 3rd academic level. It's clear from the table that the highest percentage (72.0%) of the study sample spent less5 hours online daily for academic purpose, while only (5.1%) spent more than 8 hours. The same table illustrated the highest percentage (40.0%) of the study sample spent (5 – 8) online for non-academic purpose, while (25.7%) spent more than 8 hours.

Furthermore, the table shows that most of the study samples (94.3%) used the ChatGPT application most frequently while only 4.0% used DeepSeek. It's clear from the table that the highest percentage of the study samples (79.4%) were using Smartphones as a communication device while (33.7%) used personal computers.

Table (2): Shows that there was a statistically significant relationship between using AI in education and the number of hours that the sample spent online

for academic purposes (P=<0.001**). There was also a statistically significant relationship between using AI in education and the type of communication device used by that study sample (P=0.033***).

The table also indicates that there was no statistically significant relationship between AI in education and age, gender, academic level, hours spent online daily for non-Academic purposes, or the most frequent used AI application (P=0.260), (P=0.605), (P=0.183), (P=0.224), (P=0.372)

Table (3): Demonstrates a statistically significant relationship between the impact of using artificial intelligence in education on student satisfaction and the age of the study participants (P=0.042*). A significant association is also observed between student satisfaction and their academic level of enrolment (P=0.007*). Moreover, indicates a highly significant relationship between student satisfaction and the number of hours participants spend online for academic purposes (P<0.001**).

In contrast, the table illustrates that no statistically significant relationship exists between student satisfaction and gender, hours spent online daily for non-academic purposes, the most frequently used AI

application, or the type of communication device (P=0.133, P=0.429, P=0.126, P=0.224, P=0.967)

Table (4): Demonstrates a statistically significant relationship between the impact of using artificial intelligence in education on student readiness and the age of the study participants (P=0.009*). A significant association is also observed between student readiness and their academic level of enrolment (P=0.003**). Furthermore, there is a statistically significant relationship between student readiness and the number of hours participants spend online for academic purposes (P=0.020*), as well as between student readiness and the most frequently used AI application (Copilot – Bing Chat) (P=0.049*). In contrast, it illustrates that no statistically significant relationship exists between student readiness and gender, hours spent online daily for non-academic purposes, or the type of communication device (P=0.057, P=0.087, P=0.161)

Table (5): Shows a positive statistical correlation between the use of artificial intelligence in education and student satisfaction (p < 0.001). In addition, the table indicates a positive statistical correlation between the use of artificial intelligence in education and student readiness (p < 0.00y). **

Figure (1): Illustrates that most of the study sample holds a generally favorable or neutral view toward using AI in education, with 37.7% expressing positive or neutral perceptions. This indicates a cautious openness or acceptance of AI's role in learning, reflecting that many students may recognize the potential benefits while still having some reservations or uncertainties. Meanwhile, the smaller portion (24.6%) with a negative perception highlight that a notable minority remains skeptical or concerned about AI's impact, possibly due to fears about technology replacing traditional teaching methods, privacy issues, or lack of familiarity. Overall, these results point to a need for increased awareness, education, and support to help shift neutral or negative attitudes toward more positive engagement with AI in education.

Figure (2): Shows that a large portion of the study sample holds a neutral perception regarding the impact of artificial intelligence on student satisfaction, which may suggest uncertainty or limited experience with AI tools in educational settings. The relatively low percentage of negative perception (21.1%) is encouraging, implying that fewer students have unfavorable views of AI's impact.

Overall, these results highlight the opportunity for educators to provide more exposure, education, and positive experiences with AI technologies to help shift neutral attitudes toward greater satisfaction and acceptance.

Discussion

The integration of Artificial Intelligence (AI) in nursing education is rapidly transforming learning methodologies by enhancing decision-making, academic performance, and technological readiness. The aim of this study is to evaluate the effect of using artificial intelligence in education on student satisfaction and readiness to learn at nursing college. Convenience samples were used to measure the satisfaction and readiness of students in the 3rd and 4th academic years, as these students are generally more mature and focused on their study programs, utilizing medical applications for knowledge acquisition, college platforms, Teams, eBooks, ChatGPT, DeepSeek, and others. Smartphones and technologies are also now available to all academic students. (**Luckin et al., 2023**).

The findings of the current study revealed that most participants were in the age group of 21–23 years, and most of them were females. These results might be explained by the fact that nursing is considered a feminine profession. These results align with the findings of **Cresswell, & Sheikh, (2023),** who found that a significant portion of their study samples were females. On the other hand, **Keller et al. (2025)** founded of nursing students that more than fifty percent of them were males. The study samples were enrolled in 3rd and 4th academic levels that were selected based on students' activities at those levels, to start using smartphone applications, platforms, medical applications, and internet research. These results aligned with the findings of **Cummings et al. (2023),** who reported that almost fifty percent of the study sample was enrolled in the 4th academic level. Conversely, **Davenport & Kalakota (2019).** found that nearly half of the study sample was enrolled in the 3rd academic level. The results showed that over half of the study samples were in the 3rd academic level, as more students registered at this level than the 4th.hermore, the current study indicated that much of the study sample were spending their time online daily for academic purposes.

This finding was matched with **Leite, et al. (2022),** who found that most of the study samples spend their time online daily for academic purposes. On the other hand, **Usman (2020)** reported different opinions, stating that most of the study samples spent their time online daily for non-academic purposes; they preferred social media and other entertainment websites.

The present study also disclosed that most of the participants are students using ChatGPT or other similar AI applications. From the researchers' perspective, this might be because this application is widespread, easy to use, a ferrite, applicable on smartphones as well as laptops also accomplish many

tasks. These results agreed with **Chandra et al. (2025),** who found that all participants in their study were using the ChatGPT application most frequently too. The finding additionally contrasts with **Johnston et al. (2024),** who found that thirty percent of their study sample used the DeepSeek application most frequently.

The existing study confirmed that most of the participants (students) use smartphones and communication devices among nursing students as they become available, like other devices like smart watches. From the researcher's perspective, this may be due to the device's small size, ease of use, fashionable design, and capability for entertainment. This result was matched with **Yuan et al. (2024)** who found that most of the study sample were also using smartphones in the same way. Another study reported **(Raif, 2022)** that thirty percent of the sample using a personal computer may be due to different cultures.

The findings of the study suggest a meaningful relationship between the use of AI in education and various factors, including the time students spend using online research for academic purposes and the type of communication device they utilize. The finding reveals a highly significant relationship (01) between the length of hours used for online research for academic indications rather than non-academic indications; most students engaged in digital learning are more likely to use AI tools, possibly because these tools enhance efficiency and support complex tasks. Additionally, the significant relationship with communication devices ($P = 0.033$) implies that access to certain types of technology—such as smartphones, tablets, or laptops—may influence or facilitate the adoption of AI in learning. These results highlight the importance of both digital engagement and technological access in effectively integrating AI into education. The findings also show the students spend more than five hours online daily, using different applications of AI tools.

A similar finding was reported in a study by **Zhao et al. (2023),** which found a strong correlation between students' use of AI-based educational tools and the amount of time they spent online for academic activities. Moreover, it was reported that most students who engaged more frequently with online learning environments were more likely to adopt AI tools, such as intelligent tutoring systems and AI-driven research assistants, to enhance their academic performance. Additionally, **Amin et al. (2025).** reported that the type of device commonly used, particularly laptops and tablets, plays a significant role in AI usage because these devices offer better functionality and easier access to educational AI applications. This evidence supports the current study's results, affirming that both digital engagement

and the choice of technology significantly influence the adoption of AI in education.

In contrast, a study by **Johnson & Ramirez (2022)** found no significant relationship between the use of AI in education and the amount of time students spent online for academic purposes. The past study recommended that the adoption of AI tools was more strongly influenced by institutional support and students' familiarity with technology rather than the time spent online for academic activity. In addition, the type of communication device used, whether a smartphone, tablet, or laptop, did not show a statistically significant impact on AI usage in that study. These findings challenge the current study's results, indicating that other factors such as digital literacy and access to training may play a more critical role in determining AI adoption in educational contexts.

The present study's assessment of AI usage indicates that most of the study sample holds a generally positive or neutral view toward using AI in education, with more than two-thirds expressing positive or neutral perceptions. This indicates a cautious openness or acceptance of AI's role in learning, reflecting that many students may recognize the potential benefits while still having some reservations or uncertainties. Meanwhile, the smaller portion has a negative perception, highlighting that a notable minority remains disbelieving or concerned about AI's impact, possibly due to fears about technology replacing traditional teaching methods, privacy issues, or a lack of familiarity. Overall, these significant points indicate a need for increased awareness, education, and support to help shift neutral or negative attitudes toward more positive engagement with AI in education.

A past study by **Chen et al. (2023)** reported similar findings, where most students expressed positive or neutral attitudes toward the use of AI in education, with approximately less than half showing acceptance or cautious optimism. That previous study also found that a smaller segment of students, approximately 25%, held negative perceptions, often due to concerns about the reliability of AI tools and their potential impacts on traditional learning methods. This alignment supports the idea that while many students are open to integrating AI into their education, there remains a significant group that is hesitant, emphasizing the necessity of addressing these concerns to improve overall acceptance.

In contrast, an earlier study by **Williams & Brown (2022)** found that many students held predominantly negative perceptions of using AI in education, with over half of students expressing concerns about its effectiveness and impact on learning quality. That previous research specified that only a small portion

of students viewed AI positively or neutrally, often citing fears related to reduced human interaction and mistrust in automated systems. That result differs from the current study's findings by showing a greater level of skepticism and resistance toward AI in educational settings, suggesting that acceptance of AI tools may vary significantly depending on factors such as cultural context or previous exposure to technology.

The finding indicates that student satisfaction with the use of artificial intelligence in education is significantly influenced by age, academic level, and the length of time spent online for academic purposes. Collectively, these findings underscore the multifaceted influence of both personal and behavioural factors on AI's impact on student satisfaction.

According to **Lee & Chen (2022)** supports current findings, revealing that student satisfaction with AI in education is significantly influenced by demographic and behavioural factors such as age, academic level, and time spent online for learning. The past research found that younger students and those at higher academic levels were more likely to report positive experiences with AI tools, possibly due to greater adaptability and exposure to technology. Likewise, students who spent more time online for academic purposes demonstrated higher satisfaction levels, as they actively utilized AI features for research, assignments, and personalized learning support. These results align closely with the current study, emphasizing that both user characteristics and digital engagement play critical roles in shaping students' satisfaction with AI in educational settings.

In comparison, an older study conducted by **Ahmed & Patel (2021)** did not demonstrate a statistically significant relationship between the impact of using artificial intelligence in education on student satisfaction and factors such as age or academic level. Furthermore, the amount of time students spent online for academic purposes was not a strong predictor of satisfaction in their study. This paper challenges the current study's conclusions by emphasizing that satisfaction may depend more on the design and integration of AI in the learning process rather than on individual student characteristics or online engagement time.

The present finding of this study proposes that student readiness to engage with artificial intelligence in education is significantly influenced by a combination of demographic, behavioural, and technological factors. Additionally, the findings show that students who spend more time online for academic purposes are likely to be more ready to use AI, possibly due to greater exposure to digital tools and learning environments.

A past study conducted by **Kumar & Singh (2022)** supports current findings by demonstrating that student readiness to use AI in education is significantly associated with age, academic level, and digital engagement. Also, **Monusa (2022)** found that older students and those in more advanced academic stages showed greater preparedness and willingness to adopt AI tools, likely due to increased academic responsibilities and exposure to complex learning technologies. Additionally, students who spent more time online for academic purposes exhibited higher levels of AI readiness, reflecting their familiarity with digital platforms and learning aids. The study similarly highlighted that frequent use of specific AI applications, such as Bing Chat and Copilot, contributed to greater confidence and competence in using AI for educational tasks.

In contrast, a past study by **Martinez & Lopez (2021)** found no significant relationship between student readiness for using artificial intelligence in education and variables such as age, academic level, or time spent online. Moreover, the type or frequency of the AI applications used, including tools like Copilot or Bing Chat, did not significantly affect students' preparedness. These findings oppose the current study by signifying that access to structured guidance and clear educational value plays a more critical role in determining readiness than personal characteristics or specific tool usage.

The current figure shows that most students have a neutral attitude toward the impact of using artificial intelligence in education on their satisfaction, this neutrality may reflect uncertainty or limited experience with AI tools, suggesting that many students are still evaluating how AI affects their learning. However, the substantial neutral group highlights an opportunity for educators and institutions to better demonstrate the benefits of AI, provide more support, and address any concerns to help shift perceptions toward greater acceptance and satisfaction.

A past study by **Johnson & Patel (2022)** found comparable results, where the largest portion of students held neutral perceptions about the impact of AI on their satisfaction with education, reflecting uncertainty or ambivalence toward technology. This agreement suggests that many students may still be in the early stages of adapting to AI in educational contexts, with neutral attitudes indicating openness to future experiences but also a need for more awareness and positive demonstrations of AI's benefits.

In contrast, a previous study by **Ramirez & Lee (2021)** found that most students had positive thoughts about artificial intelligence in relation to their satisfaction with education, with over half expressing strong support for AI's role in enhancing learning

experiences. Only a small minority reported neutral or negative views, which is different from the current study, where the highest proportion was neutral and a significant portion was negative. This difference suggests that in some contexts, students may be more optimistic about AI's benefits, possibly due to better AI integration, training, or familiarity, highlighting how perceptions can vary widely depending on implementation and student exposure.

The relationship between the use of AI in education, student satisfaction, and student readiness is being examined.

The present assumption indicates a strong positive statistical correlation between the use of AI in education and both student satisfaction and student readiness, signifying that as the use of AI tools increases, so do students' overall satisfaction with their learning experience and their preparedness to engage with educational content. This indicates that AI technologies may be enhancing the learning environment by providing personalized support, improving accessibility to information, and streamlining academic tasks. The positive association with readiness also suggests that students who interact with AI tools may develop greater confidence and skills in navigating digital learning platforms.

This is supported by **Smith & Jones (2023),** who revealed a significant positive correlation between the integration of AI in educational settings and increased student satisfaction and readiness. That prior research highlighted that students using AI-driven learning platforms reported advanced levels of engagement and confidence in managing their academic tasks. Furthermore, it found that exposure to AI tools helped students develop necessary skills for self-directed learning, which contributed to their overall preparedness and positive attitudes toward technology and enhanced education.

In dissimilarity, an earlier study by **Nguyen & Tran (2022)** found no significant correlation between the use of AI in education and student satisfaction or readiness. those recommended that while AI tools were available, many students did not perceive them as directly enhancing their learning experience or preparedness. It emphasized that factors such as quality of instruction, peer interaction, and course design played a more influential role in satisfaction and readiness than the simple presence of AI technology.

Limitations of the Study

This study was limited by its use of a convenience sample from a single nursing faculty, which restricts generalizability. Data was collected through self-reported questionnaires, raising the possibility of response bias. In addition, while the instruments used were previously reported as valid and reliable, the specific psychometric properties (e.g., Cronbach's alpha) of Tool II and Tool III were not available in the literature and were not recalculated in this study, Finally, the cross-sectional design prevents causal inference.

Conclusion:

The study showed that integrating AI into nursing education has a positive impact on students' learning readiness and satisfaction. AI improves academic readiness by boosting engagement, facilitating personalized learning, and providing immediate assistance. AI use, satisfaction, and readiness to be strongly positively correlated.

Recommendations

- Integrating artificial intelligence into nursing education programs provides an innovative tool that enables students to accomplish multiple tasks more effectively within shorter timeframes.
- Conduct training programs for both academic staff and students to enhance awareness and promote the effective integration of AI tools and technologies in education.
- Formulate an ethical consideration for policies and procedures for essential aspects of privacy, confidentiality, and the legal use of data.
- Establish Educational infrastructure of Campus to enhance internet connectivity, computer stations, and free access points across campuses.
- Demonstrate readiness to use AI tools and technologies, with readiness increasing with age and academic experience.
- Enhance opportunities for professional development through conferences, workshops, and training sessions that highlight updated uses of AI, its benefits, opportunities, and future applications.

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