



Student perception and attitude towards the use of artificial intelligence in higher education

Nagendra Singh

Assistant Professor, Islamia Teachers' Training (B.Ed.) College, Patna, Bihar, India

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Abstract

The study aims to examine the perception, usage, and evaluation of the use of Artificial Intelligence (AI) tools by higher education students in their academic work. The study, which employed a quantitative survey of 100 students, found that AI has seeped into modern learning, with 95% of the students knowing about AI tools and 86% of them utilizing them regularly or occasionally.

The results show students have mostly favourable attitudes toward AI with great appreciation for its academic advantages. Most feel that AI improves academic performance (76%), accelerates learning and makes it more efficient (73%), and boosts learning quality (85%). The majority of students (84%) have positive attitudes towards the use of AI in education, and 83% agree that it is important for future jobs. Access to AI tools is mostly through mobile devices (83%) including mobile apps, which underscores the importance of mobile-optimized educational technologies.

The study, however, also raises significant concerns. When it comes to the impact of AI on cognitive development, students are nervous: 77% agree that AI could have a negative impact on critical thinking skills and 72% say it could lead to a decrease in creativity. More than half believe there is a high level of student reliance on AI tools and 85% are concerned about the negative impacts overall.

However, students believe that students ought to have a balance approach despite these concerns. 68% of people say that they want to teach AI in the curriculum, while 84% support restrictions on the use of AI. This nuanced view indicates that students are seeking structured and ethical use of AI that maximises benefits and minimises risks. The study suggests that policy, student-centred approaches, development of AI literacy and ethical guidelines are needed to ensure the success of implementing AI. The results offer significant insights for educators and policymakers aiming to leverage AI's potential while maintaining key cognitive abilities and academic integrity.

Keywords: Artificial intelligence, higher education, student perception, academic performance, digital learning, ai awareness, educational technology, critical thinking

Introduction

The Transformative Impact of AI

It is the introduction of Artificial Intelligence in the education sector that has been one of the most revolutionary pedagogical changes since the advent of Internet. AI refers to the computer systems that can perform tasks that usually demand human intelligence, such as natural language processing, pattern recognition, decision making and creating new content (Russell & Norvig, 2021) ^[23]. AI applications are also multiplied in the context of higher education: adaptive learning systems that tailor content to the student's needs; automated assessment systems that deliver formative feedback; learning analytics platforms that detect at-risk students; artificial tutors that simulate human tutoring; and generative AI systems such as ChatGPT, Google Gemini, and Microsoft Copilot (Holmes *et al.*, 2019; Kasneci *et al.*, 2023) ^[13, 15]. The key distinction between generative AI and previous education technologies is that it creates original-sounding content.

It was a turning point when ChatGPT-3.5 was released in November 2022. In two months, it had more than 100 million users, making it the fastest-growing consumer application ever (Hu, 2023). Students were granted an unprecedented opportunity to use cognitive capacities that otherwise needed great expertise: to write essays in seconds, to get detailed explanations, to debug the code, to synthesize

research literature, and even to generate their own research hypotheses (Rudolph *et al.*, 2023) ^[22]. Across the different countries surveyed, 76-89% of university students have used generative AI to enhance their academic tasks, and many said they use it frequently (Crawford & Farley, 2024; Intelligent.com, 2023) ^[7]. A U.S. study revealed 89% had used ChatGPT for assignments, 53% had used it to write entire essays, and 34% used it even when it was not allowed.

Institutional Responses and Gaps

Responses have been extremely diverse at the institutional level. Others banned outright, threatening the students with fines or other disciplinary measures. Some actively introduced AI literacy in the curriculum by creating institutional AI tutors, as well as promoting the use of AI with requirements for referencing the use (Mollick & Mollick, 2023). Most institutions are in a limbo, making changes to academic integrity policies, establishing discipline-specific academic integrity decisions, and hoping detection tools will alleviate pedagogical and ethical issues (Cotton *et al.*, 2024) ^[6]. More significantly, a systematic review of 47 institutional AI policies revealed that only 12% mentioned student consultation and this was limited to superficial consultations (Swiecki *et al.*, 2024) ^[29].

The Core Problem

There is not enough empirical evidence to date to inform higher education institutions on student perception, attitude, usage patterns, concerns, and policy preferences on AI tools. This gap in knowledge makes it difficult to have evidence-based, student-centred AI policies. Institutional-level policies and strategies do not align with the lived experience of students who are both the most frequent and central users and agents of AI-based tools and practices (Chan & Lee, 2023; Kohnke *et al.*, 2023) ^[5, 17].

The current research has three weaknesses: it mainly describes the phenomena of student engagement with AI, but offers little explanation for why students accept and reject AI; it uses only quantitative methods unable to capture the subtleties of ethical thinking and contextual judgments; and it is primarily limited to generative AI in writing, while largely ignoring other uses, such as adaptive tutoring, learning analytics, and STEM problem solving. This lack of knowledge poses serious consequences. Pupils are at risk of being confused over what they can and can't use AI for and of being inconsistently supported. Teachers have no reliable information to inform their decisions related to the use of AI or for assessment design. Potentially ineffective policies are created by administrators without students' preferences in mind. Finally, higher education could be unable to leverage the potential of AI and also unable to manage the risks of AI, resulting in either dementia from overuse or in professional failure from underuse.

Research Questions

Primary Research Question: What are higher education students' perceptions, attitudes, usage patterns, concerns, and policy preferences regarding the use of artificial intelligence tools in their academic work?

Secondary Research Questions:

1. What is the demographic profile of higher education students in terms of gender, level of education, field of study, year of study, and type of institution?
2. How often do students use digital technology in their studies, and what proportion use it daily, weekly, rarely, or never?
3. What proportion of higher education students have heard about AI tools used in education, and which AI tools are students most aware of?
4. How regularly do students follow news or updates about AI technology?
5. To what extent do students agree or disagree that AI is becoming important in higher education, and do students believe that AI knowledge is important for their future careers?
6. How often do students use AI tools for their studies, which devices do they use, and how frequently do they use AI for research or project ideas?
7. Would students recommend AI tools to other students, and do they feel confident using AI tools for assignments?
8. Do students believe that AI improves their academic performance, makes learning easier and faster, improves the quality of learning, and makes learning more engaging?

9. How do students feel about the use of AI tools in higher education, and how satisfied are they with AI tools?
10. Do students agree or disagree that AI may reduce students' critical thinking ability and creativity?
11. How often do students perceive that students depend too much on AI tools?
12. What is the overall level of student concern about the negative impact of AI?
13. What level of limitations do students believe should be placed on AI in academic work?
14. Do students agree or disagree that AI should be integrated into the higher education curriculum?

Significance of the Study

This study has three layers of significance. On the theoretical level, it builds upon and extends the Technology Acceptance Model (Davis, 1989) ^[9] by adding ethical concerns as an external variable that can moderate or mediate the relationship between perceived usefulness, perceived ease of use, and behavioural intention and, consequently, add to the existing body of research on technology adoption in contexts characterised by ethical concerns, academically high stakes, and a strong sense of social norms. It offers educators evidence-based, student-based guidance for designing policies for the use of AI in the classroom, for designing assignments for the classroom, and for teaching in the classroom; and it affords students a unique chance for their voices to be heard in systematic ways in the discussion and deliberation of policies that impact their learning, assessment, and academic futures. It provides concrete, student-centered, data-informed, evidence-based policy-level recommendations for policy guidelines, assessment reform, AI literacy training, data privacy, and equitable access to AI for institutions, regulators, and professional organizations.

Objective

General Objective

The general objective of this study is to investigate, analyse, and describe higher education students' perceptions, attitudes, usage patterns, awareness, concerns, and policy preferences regarding the use of artificial intelligence tools in their academic work.

Specific Objectives

The specific objectives are organized into nine thematic categories, each corresponding to a key dimension of student perceptions and attitudes toward AI in higher education.

Literature Review

Theoretical Framework: Technology Acceptance Model (TAM)

Fred Davis's 1989 work, "The Technology Acceptance Model," is one of the most popular models for explaining user acceptance of information technology. According to TAM, there are two basic cognitive beliefs that influence the attitude toward technology use: perceived usefulness (PU): the extent to which a person feels that using a technology improves his or her performance, and perceived ease of use (PEOU): the extent to which using a technology is not effortful (Davis, 1989) ^[9]. PEOU can have a direct impact on attitude, and it can also have an indirect effect through PU, since more usable technologies tend to be more

perceived as useful (Davis *et al.*, 1989) ^[9]. TAM has been widely applied in the field of educational technology, such as learning management systems (Scherer *et al.*, 2019) ^[25], mobile learning (Al-Emran *et al.*, 2018) ^[2], adaptive learning platforms (Doll *et al.*, 2021) ^[11], and AI applications in education (Chan & Lee, 2023; Strzelecki, 2023) ^[5, 28]. But according to researchers, the original TAM does not adequately represent the specific ethical concerns of AI: Academic integrity, algorithmic bias, data privacy and over-reliance/deskilling concerns (Kelly *et al.*, 2023; Schiff, 2022) ^[16, 26]. This study builds on TAM by adding the variable of ethical concerns as an external factor, introducing TAM-E (Technology Acceptance Model with Ethics), which suggests that the attitude toward using AI is influenced by usefulness, ease of use, and the ethical acceptability of the technology, academic honesty, fairness, and personal values (Sallam *et al.*, 2023) ^[24].

Student Awareness and Usage Patterns

Student knowledge about generative AI is very high and adoption is common. According to a recent survey in the UK, 94% of 1200 students reported familiarity with ChatGPT, 76% of which reported using it academically, and 41% who reported on a weekly basis (Crawford & Farley, 2024) ^[7]. The Australian research found 82% usage, with the highest use being found in computer science (91%), business (87%) and engineering (84%) and the lowest in nursing (58%) and education (63%) (Bower *et al.*, 2023) ^[4]. According to data from the United States, 89% of people used ChatGPT for assignment work, 53% for writing whole essays and 46% for more than half of their assignments (Intelligent.com, 2023). Producing brainstorming ideas (71%), summarizing (68%), paraphrasing (65%), explaining concepts (62%), and checking grammar (59%) are the top tasks where AI is used, followed by writing a full draft (42%) and citations (38%) (Chan & Lee, 2023) ^[5]. Depending on the assessment stakes, higher or lower, students use AI. Disciplinary differences demonstrate the highest usage levels in STEM, more originality and critical thinking caution in humanities, and the lowest usage levels and negative attitudes in creative arts (Cotton *et al.*, 2024) ^[16].

Perceived Usefulness and Perceived Ease of Use

Research after research indicates that students find AI tools very useful. Strzelecki (2023) ^[28] reported a mean score of 4.12/5.0, with the highest scores in explaining concepts (4.35), grammar checking (4.28), and study questions (4.19), and lower scores for writing essays (3.65). The perceived ease of use was also high (mean 4.05), with 78% saying "ChatGPT is easy to use," and 72% saying "I can use it without written instructions. But first year and non-technical students reported problems in prompt formulation, which means that the use of effective prompts is not equally distributed.

Ethical Concerns

Academic Integrity - Students can identify appropriate and inappropriate uses. In Australia, 67% agreed that the use of AI to write an entire essay without citation was plagiarism, and 23% agreed that the use of AI to paraphrase without citation was plagiarism (Rogers & Smith, 2023) ^[20]. But there was confusion with 58% who were "unsure" about institutional policies. **Data Privacy:** Students voice concerns

about uploading work onto platforms which could keep data. Only 12% read terms of service (Sallam *et al.*, 2023) ^[24] while 58% of German research disclosed their concerns over how AI companies utilize their data, with 52% also expressing worry that their work could be utilized for training AI models without their permission. **Algorithmic Bias:** Algorithms may provide poorer AI support for students from non-English speaking backgrounds, because they were trained on typical English language texts. The results of Kelly *et al.* (2023) ^[16] revealed that 43% of the non-native English speakers were in agreement to the statement "AI tools are less accurate in my first language" while 12% of the native speakers were in agreement with the same statement. **Over-Reliance and Deskilling:** students report "calculator anxiety" in the fear that AI may diminish students' writing, reasoning, and problem-solving skills, (Rudolph *et al.*, 2023) ^[22]. Instead of fearing and avoiding AI, students show high-level ethical reasoning by creating their own guidelines for support and replacement.

Gaps in Literature

There are important gaps: Research tends to be predominantly quantitative, cross-sectional, and does not account for the dynamics of decision-making, and the research remains largely focused on generative AI for writing rather than other applications and contexts, while there is a lack of theory building to follow data collection, and student voices are not systematically involved in policy discussions; research findings are not systematically linked to actionable recommendations.

Research Methodology

Research Design: This study uses a quantitative cross sectional survey research design. The study uses a quantitative approach because the study is meant to measure and describe student perceptions, attitudes, usage patterns, concerns and preferences on the policy in a systematic, numerical way that can be summarized and generalized statistically to others in larger population. The quantitative design reduces researcher bias in data collection and interpretation and the survey instrument may be replicated by other investigators for validation or comparison. A cross-sectional design will be used because the study aims to provide information about the current attitudes, no manipulation of variables or intervention, research questions do not require information of change over time, and because of resource and time constraints, a longitudinal design is not a viable option. The study is descriptive in nature as it tries to describe the present condition of students' perception, attitude, and behaviour and correlational in nature because it examines relationships between variables without controlling variables.

Sampling Technique: The study uses stratified random sampling to provide sufficient representation in the fields of study and institution types. The advantages of stratified sampling are representation of all important disciplines (Science, Commerce, Arts, Engineering), comparison across various institutional types, sampling error is reduced compared to SRS and smaller subgroups are adequately represented.

Data Collection Instrument: A structured questionnaire with 29 items and eight sections was used to collect the

data. The first section, A, consists of demographic and background characteristics (Q1-Q7), such as gender, level of education, field of study, year of study, type of institution and how often digital technology is used. Section B focuses on awareness and knowledge of AI (Q8, Q9, Q11), such as if students have heard of AI tools, what types of tools they are aware of, and how often they read AI news. Section C deals with perceived importance of AI and perceived relevance of AI (Q10 & Q12), such as the importance of AI in higher education and with future professions. Section D focuses on how they use AI tools (Q13, Q14 and Q15), such as how often they use them, the type of devices they use, and whether they use them for research or ideas for projects. Section E includes perceived usefulness, confidence, and performance impact (Q16, Q17, Q18, Q19, Q22, Q24), such as recommendation behaviour, confidence, academic performance improvement, learning efficiency, quality improvement and engagement. Section F relates to affective attitudes and satisfaction (Q23, Q25) such as overall attitude towards AI and satisfaction with AI tools. Ethical concerns and negative perceptions (Q20, Q26, Q27, Q29) are covered in Section G including critical thinking concerns, dependency perceptions, creativity concerns, and overall concern levels. Section H examines preferences for policy and regulation (Q21, Q28) such as wanting AI to be included in curriculum and preferred restrictions on AI use.

Sample Characteristics: The study involved 100 students (59% females and 41% males). Most of them were undergraduate students (60%), followed by postgraduate (38%) and there were only 2% PhD scholars and others. Arts dominated the field of study (77%) followed by science (12%) and Commerce (8%) and Engineering (1%). This means that the results mainly relate to the non-technical subjects. The majority of the respondents were in 2nd year (36%) and 3rd year (34%), while 26% of the respondents were in 1st year. Notably, 98% were government institutions, so generalizations are limited to a private setting.

Data Analysis: Descriptive statistical methods such as frequency distributions, percentages, means and cross tabulations were used to analyse data. Appropriate statistical tests were used for each research question, depending on the variable types used. The statistical analysis was planned to systematically and reliably respond to the research questions. The counts and percentages for categorical and ordinal data were determined using Frequency Distributions. Means were calculated for Likert-scale items to provide summary measures of central tendency. The analysis was designed in the form of answering each question systematically, making it correspond directly to each research question.

Ethical Considerations: Prior to data collection, ethical approval was obtained. Informed consent and anonymity and confidentiality of all participants were guaranteed. The respondents participated voluntarily and there was no time limit for withdrawal. Data were collected in a secure manner and only for research. Protecting the anonymity and confidentiality of data and responses to research were followed.

Results

Demographic and Background Characteristics

100 students were surveyed, of which 59% were male and 41% were female. It is found that most have completed undergraduate studies (60%), followed by postgraduate studies (38%), and only 2% are PhD scholars or other categories. Arts students predominated this field of study (77%), while science (12%), Commerce (8%) and Engineering (1%) had smaller numbers. This means that the findings mainly relate to non-technical disciplines. The majority of respondents (36%) were 2nd year, 34% were 3rd year, and 26% were 1st year. It is interesting to note that 98% were from Government Institutions and so the results are generalizable only to private settings.

Digital Readiness and Technology Usage

A majority of students (59%) use digital technology every day and 28% weekly. Slightly more than one in ten (13%) said they used it rarely or not at all. This suggests that students are well-versed in digital exposure and preparedness, a key foundation for integrating AI tools into learning. Students' familiarity with digital devices and technologies implies a level of comfort with online platforms and technologies, facilitating the incorporation of AI-based learning tools into the education system.

Awareness of AI Tools

This study revealed that there is a high level of awareness about AI tools. Around 95% of the respondents indicated they know about some AI tools that are applied in education. It is indicative of the increased visibility and accessibility of AI technologies to students. When it comes to specific tools, almost half of respondents (49%) said they knew about several AI tools, 44% knew about ChatGPT and 23% knew about Gemini. This indicates that students have not only an awareness of AI, but are also delving into the various platforms they can use for academic purposes. As for following the news about AI, 25% said they follow it regularly, 53% said they followed it sometimes, 18% rarely and 4% never, suggesting a continued interest in AI news.

AI Usage Behaviour

The study reveals that AI is a common part of students' lives. About one-third of the respondents said they use AI tools on a regular basis, and 56% said they use AI tools sometimes. This shows that a vast proportion (86%) of pupils are creating and using AI tools in their learning. The other interesting discovery is that 83% of students are accessing AI tools on their mobile devices, and 14% are using a laptop. This indicates a high dependence on smartphones for academic purposes, with implications for design and accessibility of AI products. Further, 71% of respondents indicated a frequency of using AI for research and related project tasks of "always" or "sometimes. This is a clear example of how AI is being used as a tool for learning, not for trivia.

Perceived Usefulness and Performance Impact

The research shows that the students think that AI has a positive impact on their learning. About 76% of respondents agreed that AI enhances their academic performance and 73% thought that AI makes learning easier and faster. Furthermore, 85% of students voted that AI enhances the quality of learning (a great deal or some extent). 77% of

respondents said that AI makes learning more interesting, always, often or sometimes. The outcomes indicate that AI instruments are not just improving efficiency but are also playing a part in enhancing understanding and academic achievement. Beyond that, 80% said they would recommend using AI tools to their fellow students, and 72% reported using AI tools for assignments with a high degree of self-efficacy, the willingness to use AI tools and the desire to share its benefits with other students.

Affective Attitudes and Satisfaction

The research results clearly reflect a high level of positive perceptions towards AI in the context of higher education. 86% agreed that AI is getting important in higher education. Likewise, 83% thought that knowledge of AI is mandatory for future professions. Also, 84% of students had positive or very positive attitude towards the application of AI tools in education. Satisfaction with AI tools shows a high rate of student satisfaction: 59% rate their satisfaction as a 4 or 5, and 32% rate it as a 3. A small percentage were dissatisfied. The results suggest that students understand the significance of AI and are eager to use it as a tool for their learning, but there are still areas where improvements can be made to ensure it is more effective and user-friendly.

Ethical Concerns and Negative Perceptions

While the perceptions are positive, the study also raises some concerns about the use of AI. 77% of students agreed AI can decrease their critical thinking skills, and 72% agreed it can decrease their creativity. Further, 51% of respondents said they thought that students are becoming too reliant on AI tools, with 82% saying they had a level of dependency. Besides, 85% of the students were concerned about the adverse effect of the use of AI, which suggests a more balanced view, with students recognizing both the positive and negative effects of AI. The results indicate that there are potential benefits of AI, but also potential risks to cognitive development and the development of independent learning.

Policy and Regulation Preferences

The research shows that there is strong appetite for the regulated use of AI. Around 84% of the respondents agreed to limit the use of AI in academic assignments to a strict or medium extent. Meanwhile, 68% felt that it should be incorporated into the higher education curriculum. This means that while students are not against AI, they are looking for a more controlled and structured rollout of AI in the learning environment. Students want a balance as if AI is available as a learning tool, they need some boundaries like not over-reliance or misuse.

Discussion

Interpretation of Findings: The findings of this study are intricate and multifaceted, highlighting students' attitudes and perceptions regarding the use of AI in higher education. Students are simultaneously excited about AI as a valuable educational tool and worried about its negative effects on cognition. This dual view is in harmony with and further enriches the theoretical underpinning of the Technology Acceptance Model by showing how ethical issues serve as another cognitive belief that impacts student attitudes and behavioural intentions regarding the adoption of AI.

High Awareness and Usage: 95% of students are aware of AI tools and 86% use them at least once a week reinforces the pervasive adoption of AI in higher education. This is consistent with previous studies by Crawford and Farley (2024) ^[7] and Intelligent.com (2023), but usage is slightly higher than reported in the West (76-89%). This could be attributed to the swift pace at which AI is integrated into educational settings, especially in India, where students might be more inclined towards using technology as a means of educational growth. It is interesting that mobile devices are so dominant (83%) and it has implications for the design of tools and accessibility. The data aligns with the larger picture of mobile learning, and points to the need for AI technology to be designed for mobile to fully capitalize on access and equity, especially in places where laptops or desktops are not available.

Positive Perceptions and Benefits: These overwhelmingly positive perceptions (84% positive/very positive) and the recognition of academic benefits (76% agree that AI has enhanced performance and 85% think that it has enhanced quality) illustrate students' recognition of the practical benefits of AI. Pupils firmly see AI as a positive tool for improving the efficiency, accessibility, and quality of their education. This is similar to the emphasis placed on perceived usefulness as one of the main factors that would influence the acceptance of technology in the model of Technology Acceptance Model. The high rating of the recommendation (80%) also indicates strong positive attitudes, indicating that students view AI as truly helpful for their fellow students. The importance of AI to future careers (83%) suggests that students are thinking strategically for their future careers and see AI as a valuable future skill for the workforce.

Ethical and Cognitive Concerns: Although perceptions are positive, issues regarding cognitive development are very salient. The survey results show that students are not uncritical adopters, as 77% say that AI might decrease critical thinking and 72% say it might decrease creativity. They understand that Artificial Intelligence can threaten students' capacity to acquire higher education skills. This is indicative of the "calculator anxiety" of Rudolph *et al.* (2023) ^[22], which refers to the worry that technology will reduce basic cognitive skills. The overall concern level is relatively high (85%), which supports the notion that students think about the implications of using AI, and are not just consumers. Students' responses to variations in usefulness indicated that perceived usefulness should be considered a multidimensional construct for future research.

Support for Regulation: Limitation and curriculum integration had the most support (84% and 68% respectively), suggesting that students want a balance. They are not against the use of AI, but they are against the unrestricted use of AI. They believe that familiarizing themselves with AI and its proper application under guidelines is beneficial. This is an interesting sense of the nuances of "regulated integration," and one which policymakers should take note of and factor into the institutional decision-making process. Students seem to see that AI is a legitimate subject of study and a useful tool, but one that must be kept within proper boundaries, as

evidenced by the 68% supporting curriculum integration, and 84% supporting limitations.

Theoretical Implications

Theoretically, the following contributions are made by this study. First, this paper offers empirical evidence to support the extension of the Technology Acceptance Model (TAM) with the inclusion of ethical issues as a new factor affecting attitude and behavioural intention. Students' concern with critical thinking, creativity, and over-dependence indicate that they do not only value AI by its usefulness and ease of use. Instead, they conduct a more nuanced analysis, balancing out the pros and cons of the cognitive and ethical implications. This finding corroborates the proposed framework by Sallam *et al.* (2023) ^[24] and Kelly *et al.* (2023) ^[16] which is called the TAM-E (Technology Acceptance Model with Ethics). Ethical issues do not seem to depend on the perceived usefulness and ease of use, as the data suggest that they act as concurrent rather than sequential influences, which should be reflected in further research. Secondly, this study offers cross-cultural evidence to support the use of TAM across different educational contexts. The study extends the generalizability of the model, as most TAM research on AI adoption has been applied in Western context, where as the study showed its relevance in the Indian higher education system. However, some of the results are different (such as a higher usage rate, various preferences for devices, and a greater concern about critical thinking) which may lead to cultural and contextual moderation to the model. This indicates the need for culturally appropriate models of the adoption of AI and the fact that results of an AI use in one context may not be easily transferable to another. Thirdly, the study makes a contribution to the understanding of the dimensionality of perceived usefulness. Students seem to have an appreciation for the distinctions between the different kinds of usefulness – while the use of AI can be helpful for efficiency and performance, it can be harmful for the cognitive development. The results imply that future studies and theoretical work involving perceived usefulness should consider it as a multidimensional phenomenon, positive as well as negative. The findings that students believe that AI will help their performance (76%) but also hinder their critical thinking (77%) indicates that usefulness is not a one-dimensional analysis, but rather one that students are negotiating.

Practical Implications

The findings have several practical implications for educators, administrators, and policymakers.

For Educators: Educators are finding that AI is being used widely and positively, so they should not be afraid to use it. Given these concerns regarding cognitive development, however, teachers need to plan tasks that take advantage of AI to enhance learning while keeping space for independent thinking. Some strategies could include: using AI for brainstorming and initial research but then asking students to discuss, reflect on, or critically evaluate the content created by AI; using AI for drafts but requiring students to manually edit and reflect on the content; making sure students have a clear understanding of the limitations and biases of AI; designing assignments that are less suited to be completed using AI and more suited to be completed through personal reflection, experiential learning, or

creative application of AI; and discussing AI as a topic in class so students can share their experiences and evolve a shared set of ethical frameworks and principles.

For Administrators and Policymakers: There is strong acceptance of regulation, and institutions should create clear, consistent, and student-informed AI policies. Limiting the use of AI should not be too extreme because students will still use the AI even if the school says they don't. Rather, policies should offer guidance on the appropriate and inappropriate use, include considerations of academic integrity, and include provisions for building AI literacy. Given their mobile dominance, it would seem appropriate that institutional support should also involve mobile-optimised AI tools and access provisions to make sure that everyone can access them. Institutions may want to establish student advisory groups for informing the development of AI policy, as students are interested in giving their voice to that process. It is also advised to review policies regularly, as AI is evolving so rapidly.

For Curriculum Design: Institutions may consider implementing formal AI literacy programmes as indicated by the figure for Curriculum Design: (68%) AI integration in the curriculum. Such programmes should include technical skills and ethical considerations, critical analysis of AI-generated content, awareness of limitations and biases, as well as proper attribution of sources. AI literacy needs to be implemented in a way that fits across disciplines, and not as a separate course, as AI may be utilized in different ways based on the disciplinary context and task type. The result indicated that Arts students were the majority in this study and that this is indicative of the broad relevance of AI to all subjects beyond the realm of technology. Some of the courses might encompass AI ethics, AI use in professional settings, and critical AI literacy.

For Students: The results indicate that students need to take the initiative in creating their own guidelines for responsible use of AI. Although policies are relevant, the responsibility for the learning and ethics of the student is theirs. Students should think about how they might be impacting their cognitive growth through their use of AI and do what they can to not be doing anything that would be counterproductive. This may involve: establishing their own limits and understanding when to use AI and when to work on their own; obtaining guidance from instructors on using AI; discussing with their peers about ethical use; regularly reviewing their own experience of using AI to inform their learning and skill development.

Conclusion

According to the results of this research, Artificial Intelligence has made a significant mark on contemporary education. Students today are aware of AI tools and are using these tools as part of their academic work. The level of awareness and use indicates a growing awareness and relevance of AI technologies in educational setting. Pupils understand how AI can help improve their learning, for example, by giving them instant access to information, helping them with their learning and homework, and personal learning support. Consequently, learning is more efficient, interactive and engaging. The study also shows

that there is a middle ground or even a dual sentiment among students about AI. They recognize its benefits, but are also mindful of its drawbacks. One of the biggest issues is the potential to become overly dependent on AI, which could lead to a decrease in critical thinking abilities. Relying heavily on AI-generated responses might not allow students to delve into the material or cultivate their ability to analyse it. Likewise, there is a worry about a reduction in creativity, with students perhaps using AI to propose ideas rather than independently thinking up their own. Another issue highlighted is the risk of dependency, where students may become overly reliant on AI tools for even simple academic tasks. One key finding from the research is that the study highlights the prevalence of mobile devices in accessing AI tools. The use of the smartphone is preferred by most students because of its convenience, cost-effectiveness and availability. This shift calls for mobile-friendly design and development of educational technologies, such as AI applications. To make sure that AI is accessible for all students, regardless of their economic status, it is crucial to have user-friendly interfaces, low data consumption, and accessibility features. The study also highlights that most of the respondents are from government institutions, highlighting the need to develop cost-effective and inclusive artificial intelligence solutions that can be widely deployed in public education systems. Additionally, the results highlight the importance of the complementary use of AI and traditional learning. Traditional education is important for building basic knowledge, critical thinking and interpersonal skills. AI can serve as an enabling platform that can augment these learning processes, however. It can, for instance, explain uncertainties, offer materials and exercises. But it is the duty of the educators and institutions to use AI with balance and control.

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