# A Questionnaire Survey on AI+Education Counting

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**Abstract: In recent years, with the rapid development of the Internet technology, the integration of technologies and education has greatly promoted the reform and development of university education. Based on analyzing the influence and impact of AI on university education, the paper puts forward the undeniable problems that need to be solved. The survey finds that although AI has obvious advantages in reforming teaching content, enriching teaching methods, and optimizing learners' learning experience, and it still needs to be constantly improved in the process of educational application.**

**Key words: Artificial Intelligence; Education; Benefits; Challenges; Future**

## 1. Introduction

Early this year, the news report in *The Economist Business* (Jan. 6th, 2024) has drawn hit attention.According to the report, in the past years when the pandemic forced schools and universities to shut down, students flocked to online learning platforms to plug gaps left by stilted Zoom classes. The report also took the AI + education cooperation of two universities as an example: the Shenzhen campus ofthe Chinese University of Hong Kong andthe Shenzhen Research Institute of BigData are helping Saudi Arabia's King Abdullah University of Science and Technology (KASUT) build an artificial-intelligencemodel to power an Arabic-language chat-bot called ACEGPT. Around one in five ofKAUST's students and one in three of itspostdoctoral researchers are Chinese[1].

The report arose the curiosity that how enormous the impact of AI is on higher education after the pandemic. The integration of artificial intelligence in education has brought about profound changes and influenced various aspects of teaching and learning. The paper based on the questionnaire surveyexplores the impact of AI on education, simultaneously highlighting its potential benefits and challenges as well.

## 2. Research Questions

Thehitherto survey examined the implementation of AI + education at universities. Then here comes the question: if the pandemic couldn't overcome the education's resistance to digital interruption, can Artificial Intelligence? What are the benefits and challenges the AI + education is facing? Is the future of AI + education still promising?By addressing these research questions, this study offers a comprehensive overview of the current situation of AI + education at colleges and universities.

## 3. Method

To provide a currently objective perspective, we hereby conducted a quantitative study by questionnaire of 23 questions among 30 students aged 18 and above at Zhejiang University,China ，most of whom major in social science, and perhaps the relatively small percentage of natural science majors may affect the objective accuracy of the survey(Figure 1). They come from the first-or-second-tier cities and other small cities, counties and townships (Figure 2), which may also lead to their early or late contact with AI + education (Figure 3).

## 4. Discussion

AI technologies have rapidly become ubiquitous, significantly impacting everyone's daily life. As a result, schools and educators have started to recognize the importance of AI + education, which aims to teach fundamental concepts, essential knowledge, and practical skills related to the majors and professions.

The findings of the survey highlight that various topics were covered in AI + education, including AI applications, ethical considerations related to AI, the future

development of AI + education, etc. The findings supported the benefits of AI + education in enhancing students' AI literacy, problem-solving skills, and ethical reflections on AI's societal impact. Furthermore, it fosters positive attitudes toward AI + education and reflections onthe technology while inspiring professional aspirations. It is recommended to develop tailored AI curricula, instructional strategies, and appropriate tools and resources that seamlessly integrate into various aspects within the standard school curriculum.
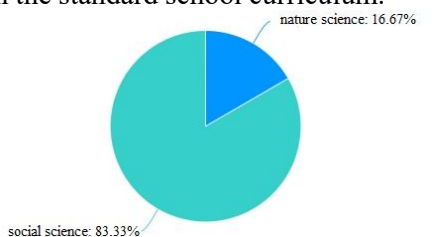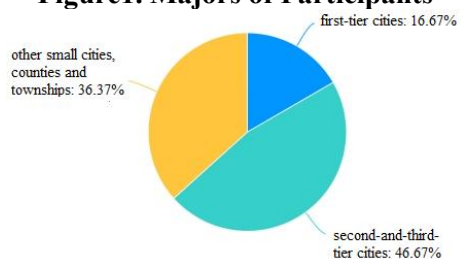


**Figure1. Majors of Participants**



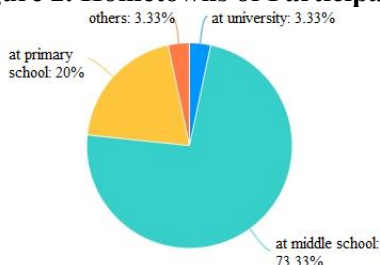**Figure 2. Hometowns of Participants**



**Figure 3. When First Accessed AI Education**

Meanwhile, referring to the proportion of advantages and disadvantages, opinions diverged. Although more than half of the participants agree that the advantages (56.67%)greatly outweigh the disadvantages (3.33%), there is still fewer than half of the participants (40%) maintain a relatively conservative and wait-and-see attitude towards AI + education(Figure 4). Following we further discuss the benefits and challenges of AI + education.

## 4.1 Benefits

On the one hand, students widely believe that the advantages and the future of AI education are undoubtedly ubiquitous, promising and

bright. Students, for their parts, are embracing the technologies. Blessed with affordable price, inexhaustible courses, vivid and interesting learning methods and controllable schedule, AI education becomes more convenient than ever before, let alone the fact that no need to socialize with the real world is also a great relief for introverted people. Sophisticated students cunningly and firmly turn to AI for help in their study (Table 1).
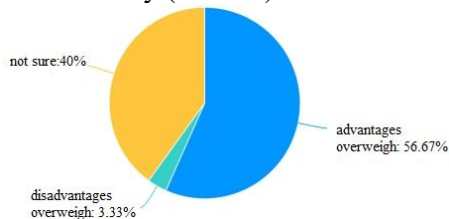


**Figure 4. Opinions on Advantages and Disadvantages**

**Table 1. Why Do You Seek AI Help in Education**

| Reasons why you seek AI help | Percentage |
|---|---|
| More convenient | 66.67% |
| Economic and cost-saving | 66.67% |
| No social pressure | 66.67% |
| Rich resources and approaches | 66.67% |
| Flexible time | 66.67% |

Actually when it comes to advantages of AI + education, people may make a long list, including:personalized learning tailored to individual student needs; enhanced instruction and real-time feedback through AI-powered tools; time-saving administrative tasks, such as grading and scheduling; improved access to quality education regardless of location or socioeconomic status; data-driven decision-making for targeted interventions and instructional strategies; inclusive education through AI technologies like captioning and translation; continuous learning and adaptability to keep pace with advancements; increased engagement and independent learning for students; efficient content delivery and scalability through online learning platforms; equal opportunities and accessibility for students with disabilities or language barriers, etc. [2]

First of all, one of the significant impacts of AI is personalized learning. Through the use of AI algorithms, educational institutions can analyze students' learning styles, preferences, and capabilities to tailor educational plans and materials accordingly. This personalized approach enables students to learn at their own

pace, enhances their engagement, and improves learning outcomes.

AI also facilitates the automation and optimization of administrative tasks in education. For example, it can automate grading processes, reducing the time and effort required by teachers. Additionally, AI-powered virtual assistants can provide real-time support and answer students' questions, enhancing the accessibility and availability of educational resources.

Furthermore, AI opens up new avenues for inclusive education. By leveraging technologies such as speech recognition and text translation, students with diverse learning needs can access educational content more easily. AI can also adapt to individual students' learning difficulties, providing personalized support and accommodations.

### 4.2 Challenges

On the flip side, AI + education is not without challenges. One concern is the potential for over-reliance on technology, potentially neglecting the importance of human interaction and critical thinking skills. Additionally, the ethical and privacy considerations associated with the use of AI in education require attention to ensure the protection of students' personal information (Table 2).

**Table 2: Obstacles that AI Brings to Your Study**

| Obstacles that AI brings to your study | Percentage |
|---|---|
| Rely on AI and lack of logical thinking | 100% |
| Reduced self-leaning abilites | 100% |
| False information | 100% |

Particularly, despite of the benefits mentioned above, most of students (80%) believe that human teachers are more likely to be competent to teach well and AI will never take the place of human teacher (Figure 5). In their eyes, though AI is able to respond to and inspire individual students 24/7 whenever they want for free, the technologies are still incomparable to the beloved human teachers because of their intrinsically indifferent emotional connections and lack of intuitive feedbacks. Moreover, some of them even think that AI somehow becomes an invisible obstacle in their study, downgrading their self-learning ability, increasing their dependence on AI information which might even turns out to be untrue, restricting their logical thinking and etc.

They even definitely refuse to give up the real classroom teaching. Just like Professor Ethan Mollick points out in his paper, "Classrooms provide so much more opportunities to practice learnt skills, collaborations on problem-solving, support from instructors and socializing." [3] The role they expect AI to play is not to teach directly, but to assist them with their homework, assessment and feedback. Also, confronted with the fierce AI challenges, human teachers in the new era should advance with the time and make good use of AI in the AI-supported smart classrooms.
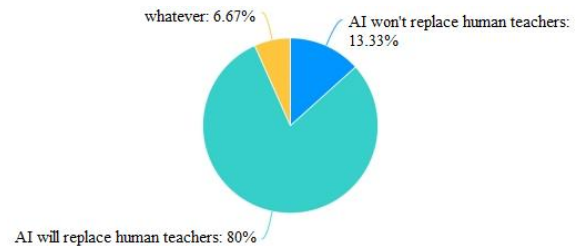


**Figure 5. AI VS Human Teachers**

### 4.3 Further thinking and actions

Although the survey had small sample sizes and short durations, it suggested that the future of AI + education is believed to be bright and optimistic (Figure 6). AI helps students improve their AI literacy, apply AI knowledge to solve real-life problems, and develop foundational skills, along with critical and ethical reflections on the role and use of AI in society. AI + education had a positive impact on students' learning outcomes, motivation, attitudes toward AI, interest in technology, and career explorations. The findings underscore the importance of effective teaching methods, hands-on activities, integration with other subjects, and addressing misconceptions to promote successful AI + education.
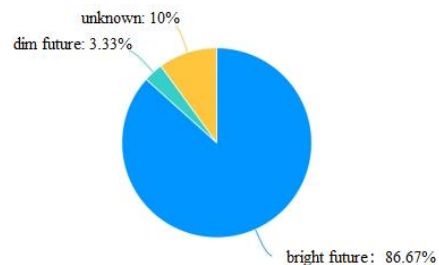


**Figure 6. Future of AI Education**

For future research, it will be important to investigate innovative AI curricula and approaches, evaluate their impact on students' learning outcomes over time, and explore the implementation of professional development opportunities for teachers and students. And of

course, AI resources must be made equally accessible to minimize learning gaps in teachers and students.

## 5. Conclusion

Artificial Intelligence is already impacting many facets of life and is poised to dramatically alter the maintenance of education and the delivery of education. The explosion of information available to inform the work of educational professionals exceeds each individual's capacity to process it effectively. Learning to wield collective knowledge to augment their own personal abilities will distinguish the education provider of the future from the education provider of the past. All education professions have an opportunity to leverage AI tools to optimize the growth of students and teachers [4].

AI + education presents a timely and exciting opportunity to motivate students and encourage them to think creatively. College students, with the help of dedicated software tools, are capable of learning and applying AI. One promising approach to AI + education is to integrate AI projects into the core subjects, giving students the freedom to develop original and powerful solutions while finding real-world applications of the topics they learn in their core classes. Moving forward, there is a need for comprehensive and longitudinal data relevant to AI + education to assess how the benefits, such as those described in this paper, can be best realized.

In conclusion, there is a growing feeling of urgency and excitement regarding AI that has now pervaded to the global stage. AI has the potential to revolutionize education by enabling personalized learning, automating administrative tasks, and promoting inclusive education. However, it is crucial to address the challenges and considerations associated with its integration to ensure a balanced and effective educational experience. As AI continues to evolve, educators, policymakers and society as a whole must actively engage in shaping its application in education for the betterment of future generations. We hope that this excitement will be joined by more students and teachers in the education community, who are of critical importance to ensuring that the young generation is prepared for the AI-driven future.

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