

# SKILLS FOR USING AI IN HIGHER EDUCATION

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## ABSTRACT

Artificial intelligence (AI) has become an important technology, deeply affecting many different fields. This article discusses the importance of AI skills in higher education and why equipping students and educators with these skills is essential for the future. AI is transforming teaching and learning, from personalizing learning experiences to optimizing data management and analysis. Students with AI skills not only enhance their employability but also improve their work efficiency and problem-solving abilities. However, implementing AI faces many challenges such as lack of funding, expertise and ethical issues. The article proposes solutions such as investing in training, collaborating with businesses and developing clear policies to overcome these barriers. Finally, the article emphasizes that integrating AI skills into higher education is necessary to prepare students for changes and opportunities in the future labor market.

**Keyword:** Artificial Intelligence in Education, AI Skills in Higher Education, Educational Technology

## 1. INTRODUCTION

Today, artificial intelligence (AI) has quickly become one of the most important and influential technologies in the world. AI's ability to process and analyze large amounts of data has opened up countless applications in many different fields, from healthcare and finance to manufacturing, retail, and media. AI is not only changing the way we live and work but is also reshaping the structure and operations of all industries, creating major breakthroughs in performance and efficiency.

In the context of this technological revolution, education is also changing rapidly. AI is creating far-reaching changes in the education system, from optimizing teaching and learning processes to improving learning data management and analysis. Integrating AI into education not only helps improve the quality of teaching and learning but also opens up new educational methods, helping to personalize the learning experience for each student.

The purpose of this article is to discuss the importance of AI skills in higher education and why equipping students and educators with these skills is essential for the future. With the rapid development of technology, AI skills are becoming an important requirement in the modern labor market. Students not only need to master professional

knowledge but also need to be able to use AI to solve complex problems, improve work efficiency, and create new values.

First of all, it is necessary to recognize that AI is transforming every aspect of higher education. From creating smart learning systems capable of automating teaching and learning processes to using AI to analyze learning data and provide instant feedback to students and lecturers, these advances not only help improve teaching effectiveness but also help educational institutions optimize resources and improve training quality.

In addition, skills in using AI also bring many benefits to students. Mastering AI technologies not only provides students with tools to enhance their ability to absorb humanity's increasingly vast knowledge but also supports students in practicing soft skills and solving real-life problems. Moreover, it helps students improve their employability in the context of a rapidly changing labor market with the rise of automation and new technology. AI skills will help students stay competitive and adapt to new job requirements.

However, implementing AI in higher education is not without challenges. Issues such as lack of funding, lack of AI expertise, and ethical concerns are major barriers. To overcome these challenges, universities need to carefully consider the impacts of AI in management and training activities to build appropriate infrastructure and policies to promote the development of technology in general and AI in particular in higher education.

With the benefits and challenges mentioned, this article will delve into the discussion of the role of AI in higher education, the benefits of AI skills for students and educators, and the challenges of deploying AI in education. It will also explore how educational institutions can prepare students for the future, thereby emphasizing the importance of equipping AI skills in higher education to meet changes and opportunities in the future labor market.

## **2. THE ROLE OF AI IN HIGHER EDUCATION**

AI is gradually becoming an important factor in shaping and improving higher education systems around the world. From creating innovative teaching methods to optimizing management processes, AI is bringing fundamental changes in the way education is delivered and approached. Here are some of the ways AI is and will continue to transform the higher education sector.

### **2.1. Personalized learning**

AI allows the creation of personalized learning systems that meet the needs and learning speed of each student. Through analyzing learning data, AI can recommend the most suitable content and learning methods for each individual, helping to optimize the learning process and increase the efficiency of knowledge acquisition. This not only improves learning outcomes but also creates a more engaging and flexible learning experience.

### **2.2. Automatic scoring**

AI can automatically grade tests, assignments, and even dissertations with high accuracy. This helps reduce the workload for lecturers, while ensuring objectivity and consistency in the assessment process. Automated grading systems can also provide immediate feedback to students, helping them better understand mistakes and improve their writing and analytical skills.

### **2.3. Advanced data analysis**

AI has the ability to process and analyze large amounts of learning data to provide detailed information about student learning progress. Educators can use this information to early detect problems that students encounter, thereby providing timely support measures. In addition, data analysis also helps improve curriculum, adjust content and teaching methods to suit the actual needs of students.

### **2.4. Management and operation support**

AI also plays an important role in the management and operation of educational institutions. AI systems can optimize class schedules, allocate resources, and manage student records effectively. This not only saves time and costs but also improves service quality and student experience.

### **2.5. Virtual assistants and chatbots**

AI-integrated virtual assistants and chatbots can support students and lecturers in many different aspects, from answering frequently asked questions, guiding the use of study materials, to providing academic advice. arts and

career guidance. These virtual assistants operate 24/7, helping students and lecturers save time and get timely, effective support.

## **2.6. Research and development**

AI also plays an important role in promoting research and development in higher education. AI tools can assist faculty and students in collecting, analyzing, and interpreting research data, thereby generating new discoveries and innovations. The application of AI in research also helps increase accuracy and efficiency, while also opening up new and potential research directions.

In short, AI is and will continue to play a key role in improving the quality and efficiency of higher education. AI technologies and applications not only bring significant improvements in the teaching and learning process but also create new opportunities for the development of the education industry. To make the most of these benefits, educational institutions need to focus on training and equipping both students and lecturers with AI skills, and invest in research and development of AI applications. Fit.

## **3. BENEFITS OF AI SKILLS FOR STUDENTS**

Mastering the skills of using AI brings many significant benefits to students, especially in studying, scientific research, developing life skills and soft skills, as well as supporting students' support daily life. Below are specific ways AI skills can help students be more productive and enhance their learning and life experiences.

### **3.1. Support learning and scientific research**

Using AI in learning and scientific research brings many important benefits. AI like ChatGPT can provide learning content on a common database, or private databases provided and trained by universities. In addition, AI can help students collect, process and analyze data quickly and accurately, thereby saving time and improving research efficiency.

AI also assists students in writing and editing academic texts. AI software like Grammarly can provide suggestions on grammar, structure and content, helping to improve the quality of writing and increase the ability to convey information. In addition, AI can help students search for academic documents, synthesize information from many different sources, and create detailed and accurate reports.

### **3.2. Develop life skills and soft skills**

AI skills also play an important role in developing students' life skills and soft skills. Learning and using AI requires students to think logically, analyze and solve problems effectively. These skills are not only important in the technology sector but are widely applicable in many aspects of life, from time management, teamwork to decision making.

AI also helps students develop communication and collaboration skills. AI tools support online teamwork, helping students communicate effectively with colleagues and lecturers, manage projects, and share information easily. This not only helps strengthen teamwork skills but also enhances communication and collaboration abilities in the learning and working environment.

### **3.3. AI as a learning and life assistant**

AI can act as a powerful learning and life assistant for students. AI-integrated chatbots and virtual assistant applications can help students organize their time, plan their studies, and remind them of important tasks. These virtual assistants can also answer questions related to learning content, provide reference materials, and provide guidance on using learning tools.

AI also helps students optimize their personal learning process. By analyzing student learning data, AI can recommend appropriate learning methods, adjusting content and learning speed according to each individual's needs and abilities. This not only helps students study more effectively, but also creates a personalized and enjoyable learning experience.

### **3.4. Enhance productivity and creativity**

AI helps students increase productivity and promote creativity in study and life. AI tools can automate many tedious and repetitive tasks, allowing students to focus on more important tasks and use their time efficiently. Using AI to

collect and analyze data also helps students make smarter decisions and achieve better results in learning and research projects.

Additionally, AI encourages creativity by providing tools and platforms for students to develop new ideas. From designing smart applications to developing advanced technology solutions, AI opens up many opportunities for students to explore and express their creativity.

### **3.5. Improve employability and social contribution**

Ultimately, AI skills significantly improve students' employability. With the rapid development of technology and automation, AI skills have become an important requirement in many occupations. Students with AI skills not only easily find jobs but also have the opportunity to advance their careers.

In addition, mastering AI skills also helps students contribute positively to society. AI can be used to solve important social and economic problems, from improving the quality of education and healthcare, to protecting the environment and enhancing security. By participating in community AI projects, students not only create new values but also demonstrate social responsibility and professional ethics.

In summary, AI skills bring many important benefits to students, from supporting learning and scientific research, developing life skills and soft skills, to optimizing productivity and promoting innovation. Mastering AI skills not only helps students prepare well for the future but also opens up many opportunities for them to contribute to the community and society. Educational institutions need to focus on investing in teaching and training AI, creating favorable conditions for students to **access and develop these skills**.

## **4. THE IMPORTANCE OF AI SKILLS FOR EDUCATORS**

AI skills are not only important for students but also play an essential role for educators. Mastering and applying AI in teaching can significantly improve teaching methods, increase student engagement, and improve educational effectiveness. Here are specific reasons why AI skills are important for educators:

### **4.1. Improve teaching methods**

AI brings new teaching tools and methods, helping educators personalize the learning process for each student. Adaptive learning systems use AI to track student progress and performance, thereby recommending lessons and activities tailored to individual abilities and needs. This helps students learn more effectively and instructors can focus on supporting students who need special help.

For example, learning platforms like DreamBox and Knewton use AI to deliver customized math and science lessons, based on how learners interact with content and their performance on tests. Instructors can use this information to adjust teaching methods, ensuring each learner receives maximum support.

### **4.2. Increase student engagement**

AI can create more interactive and interesting learning environments, thereby increasing student engagement. ChatGPT can participate as a coordinating member for student group activities, exchange content appropriate to the topic of the activity and ensure the time is according to the determined plan. This not only makes learning more interesting but also helps students develop teamwork and problem-solving skills.

### **4.3. Increase teaching efficiency and classroom management**

AI helps instructors manage classes and track student progress more effectively. Learning analytics tools use AI to provide detailed data on student performance, helping instructors identify problems early and intervene promptly. AI can also automate administrative tasks such as grading, score tracking, and time management, allowing instructors to spend more time teaching and interacting with students.

Specifically, learning management systems (LMS) such as Blackboard and Canvas integrate AI to track and analyze learner learning data, thereby providing detailed reports and recommending improvement actions. This helps lecturers quickly grasp each student's learning situation and adjust teaching plans effectively.

### **4.4. Maintain relevance in the field of modern education**

In a rapidly evolving technology landscape, educators need to master and apply AI to maintain relevance and effectiveness in teaching. AI skills not only help faculty use technology tools effectively, but also help them



understand and educate students on concepts related to AI and data, skills that are increasingly important in the world of AI. 21st century.

AI training and professional development courses for faculty, such as programs from Google for Education or the Microsoft Educator Center, provide the knowledge and skills needed to apply AI in teaching. This not only enhances the capacity of lecturers but also helps them impart this important knowledge and skills to students.

In short, AI skills are not only important for students but also a key factor for educators to improve teaching methods, increase student engagement, and improve educational effectiveness. Investing in AI training and skills development for faculty is necessary to ensure that they can take full advantage of AI's potential, create modern and effective learning environments, and prepare for students with the skills needed for future success.

## **5. THE CHALLENGES OF IMPLEMENTING AI IN HIGHER EDUCATION**

Although AI brings many benefits to higher education, its implementation also faces many significant challenges. These difficulties range from financial issues and lack of expertise to ethical and privacy concerns. Addressing these challenges requires close collaboration between stakeholders and strong investment in resources and technology. Here are the main challenges and how to solve them:

### **5.1. Lack of funding**

Implementing AI in higher education requires a large amount of finance to invest in technology infrastructure, software, and human resource training. Many universities, especially those with limited resources, have difficulty raising enough funding to deploy AI solutions.

Solution: Universities need to seek funding from the government, non-profit organizations and private businesses. Partnering with technology companies for sponsorship or technical support is also an effective way. Building collaborative research and development projects with external partners can help share costs and resources.

### **5.2. Lack of expertise**

Implementing AI requires highly specialized skills and knowledge, but many universities lack qualified personnel in this field. This makes it difficult to develop and maintain effective AI systems.

Solution: Investment in training and professional development for faculty and staff is necessary. AI courses and training programs should be organized regularly. Partnering with external experts and organizations to provide training and technical support is also a viable approach.

### **5.3. Ethical and privacy concerns**

The use of AI in education raises many ethical and privacy issues. AI systems can collect and process large amounts of personal student data, raising security and privacy concerns. Additionally, the use of AI in assessments and decisions can lead to unwanted biases and discrimination.

Solution: Clear regulations and policies regarding data privacy and security need to be established. Universities should apply high standards of security and ensure that student data is rigorously protected. It is also important to be transparent and clear in the processes that use AI and ensure that AI systems are free from bias and discrimination.

#### **4. Resistance from faculty and students**

Some faculty and students may be resistant or unwilling to accept the change brought about by AI, due to concerns about job loss or feeling uncomfortable with new technology.

Solution: It is necessary to provide clear information about the benefits of AI and organize training sessions and seminars to explain and introduce AI. Promote the participation of faculty and students in the AI implementation process, listen to their opinions and feedback to improve the system and create consensus.

#### **5. AI quality and reliability issues**

AI systems may not be perfect and may make errors, especially when input data is incomplete or inaccurate. This can affect the quality of education and cause undesirable consequences.

**Solution:** Rigorous testing and evaluation processes are needed to ensure the quality and reliability of AI systems. Use rich and diverse data sets to train AI and regularly update and improve the system. Maintaining human oversight and combining AI and human expertise also helps ensure that AI decisions are accurate and appropriate.

In summary, implementing AI in higher education brings many benefits but also faces many challenges. To overcome these challenges, universities need strong investments in technology, training and management policies. Collaboration between stakeholders and transparency in the use of AI will be key to ensuring that AI is applied effectively and sustainably in higher education.

## **6. PREPARE FOR THE FUTURE OF HIGHER EDUCATION**

The rise of AI has changed the nature of many jobs and requires university educators to prepare students for the new world of work, where AI plays an increasingly important role. Here are ways that higher education institutions can prepare for the future of higher education:

### **6.1. Design a flexible and diverse learning program**

Universities need to adapt their academic programs to include courses in AI and related fields. At the same time, it is necessary to provide practical learning opportunities and research projects so that students can apply AI knowledge and skills in practice.

### **6.2. Develop life skills and soft skills**

In addition to professional knowledge, students also need to be equipped with life skills and soft skills such as the ability to work in groups, communicate effectively, logical thinking and creativity. Extracurricular activities and hands-on projects can help students develop these skills.

### **6.3. Enhance interaction with businesses and the community**

Universities should build partnerships with businesses and organizations in the community to provide students with opportunities for internships, research projects, and business-school collaborations. This helps students apply knowledge into practice and develop important networks for their future careers.

### **6.4. Train faculty and staff on AI**

Not only students but also faculty and staff of the school also need to be trained in AI to be able to apply this technology in the teaching and management process. AI training courses and professional development programs should be organized regularly to improve the capacity of teaching staff.

### **6.5. Encourage creativity and innovation**

Higher education institutions need to create an environment that promotes creativity and innovation in applying AI to teaching and research. Encouraging students and faculty to participate in new technology research and development projects will help promote progress in this field.

### **6.6. Build an academic and research community about AI**

Universities should create AI academic and research communities to enhance communication, collaboration, and knowledge sharing among students, faculty, and researchers. Promoting the development and sharing of knowledge within the community will help increase the capacity and development of the field of AI in education.

## **7. CONCLUSION**

Preparing for the future of work requires substantial investment from higher education institutions. By adapting academic curricula, developing life and soft skills, enhancing engagement with businesses and the community, and training faculty and staff in AI, universities can ensure that students are fully equipped with the knowledge and skills necessary to succeed in a future driven by technology and AI.

In the context of the rapid development of AI, its role in higher education is becoming increasingly important and undeniable. From improving teaching methods and increasing student engagement to preparing for the future of work, AI is transforming the way we learn and teach.

Faced with the challenges and opportunities of the future, universities need to invest more heavily in technological resources and continually enhance the knowledge and skills of both lecturers and students. By leveraging the potential of AI and related skills, institutions can create an increasingly efficient and evolving higher education system, bringing maximum benefits to students and society.

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