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# The challenges of artificial intelligence in online learning

***Artificial intelligence has the potential to revolutionize the way we learn. But what are the challenges of implementing AI in eLearning?***

## What are the main obstacles of AI implementation?

Artificial intelligence (AI) is radically changing our lives: from smart appliances, to writing tools, to self-driving cars, we are beginning to incorporate AI into virtually every aspect of our lives. Another field in which AI is being used with great success is online learning. Indeed, artificial intelligence has the potential to revolutionize the way we learn and teach. As a tool in the classroom, artificial intelligence can provide students with personalized learning experiences, automate repetitive tasks, and provide immediate feedback. However, it also has limitations, and companies and institutions looking to upgrade their learning systems with artificial intelligence still face some challenges. In this article we will examine 8 challenges of AI implementation by considering a scientific **article** published in the International Journal of Educational Technology in Higher Education.

## The 8 problems of AI implementation

1. **Insufficient or low-quality data**: the fuel that makes AI systems work is the **data** that these systems process to achieve the desired outcome for those who use them. However, companies often struggle to "fill the tanks" for their AI systems with the **quality** or **volume** of data they need. This is not due to an error on the part of the systems developers, but simply because access to the data is not possible or because that amount of data does not yet exist. These limitations can lead to discrepant or even discriminatory results when using an AI system. This problem, otherwise known as **bias**, can be avoided if one makes sure to use **representative**, **high-quality data**. In addition, if you want to start using AI for the first time and do not have databases that are rich in data, it would be best to start by adopting AI systems that run on **simple algorithms** that you can easily understand, where you can check bias and make adjustments as needed.
2. **Outdated infrastructure**: AI systems must process huge amounts of information in fractions of a second for them to give the expected results. The only way to make this happen is to operate on devices that have **excellent processing capabilities** and **adequate infrastructure** behind them. This is necessary to ensure that the AI is used in an environment where it can work: sufficient storage space and the availability of adequate processors are some of the indispensable elements for the proper functioning of an AI. However, many companies, schools and organizations are still using outdated equipment that is completely unable to meet the challenge of implementing AI. So, it is obvious that companies that want to revolutionize their learning and development methods with machine learning must be ready to invest in technologically advanced infrastructure, tools and applications. Not only that, the training of educators in the operation of these systems will be necessary in the future to gain all the benefits possible from these technologies. Training educators will not be needed to ensure that AI works, but to make sure that these systems can actually improve students' lives.
3. **Integration into existing systems**: incorporating artificial intelligence into an existing education system is much more complex than downloading a few plugins to an **LMS**. As mentioned above, a lot of time needs to be spent evaluating whether you have the storage space, processors, and infrastructure necessary for the system to function properly. At the same time, employees need to be trained to use the new tools, solve the simplest problems, and recognize when the artificial intelligence algorithm is not working properly. Another 'route might be to work with a vendor that has the necessary AI experience and expertise. Whichever path you decide to take, make sure you are prepared to overcome all these issues and ensure the smoothest possible transition to using AI.
4. **The lack of talent in the field of AI.** Considering how new the concept of AI is in learning and training, finding people with the **necessary knowledge** and skills in this field is a significant challenge. Indeed, the lack of in-house knowledge prevents many companies from trying their hand at AI. Although finding a vendor who can take a company to machine learning is a viable solution, many companies are coming to the conclusion that it is more beneficial in the long run to invest in an internal knowledge base. In other words, they suggest training employees on AI development and implementation, and hiring talent that specializes in this area instead of relying on outside companies. As discussed above, educators need to know how to use these systems because they are technologies that touch on sensitive issues

such as the use of personal data but also because, being the first time in the history of education that we are using such technologically advanced means, it is good to be aware of and in control of technologies that impact learners. 7

5. **Transparency in AI systems.**The technological advances we have witnessed in recent decades often lead us to believe that technology cannot make mistakes, but AI relies on the data it is given, and if that data is not correct, neither will the decisions it makes. In this case, it is important to be able to **correct errors**. A big challenge for AI implementation is that the learning process is quite complex, especially when trying to formulate it into a data set that we can import into a system. For this reason, **transparency** of an AI algorithm is critical to a successful transition to machine learning. Being able to **understand the algorithms** and educating users about AI decision making ensures transparency and helps prevent erroneous operations.
6. **Costs.** Based on everything we have discussed so far, it is easy to see that developing, implementing, and integrating AI into a training strategy will not be cheap. To do it well, you will likely have to partner with AI experts who have the necessary knowledge and skills, launch an ongoing AI training program for your employees, and upgrade your IT equipment to be able to handle the requirements of AI tools. Although it is impossible to avoid some of these costs, you can minimize them by looking for low-cost training programs or free applications. Several options are available that can help you understand what AI features your training program could benefit from before spending money to acquire them; however, they are not sufficient to integrate an AI system into an existing training system. In any case The cost of developing and implementing AI-based instructional tools can be a significant barrier for schools and teachers. Edtech companies should work to make AI technology accessible to a wider range of schools and teachers and explore alternative funding options, such as grants or partnerships, to help offset the costs.
7. **Privacy, security and ethical considerations.** Privacy issues are a significant limitation of AI in the classroom. Edtech companies must ensure that **sensitive personal data** collected and stored by AI-powered educational tools are adequately protected and that privacy is maintained. Accordingly, Edtech companies need to consider the ethical implications of AI technology in education and develop AI tools in a transparent, fair and accountable manner. They must also ensure that they develop and use AI tools in accordance with laws and regulations governing data privacy, security, and intellectual property.
8. **Lack of human interaction.** Another problem with AI systems is the lack of human interaction and emotional support that students receive when using these educational tools. Although AI can provide personalized learning and instant feedback, it cannot replace the **human and emotional support** students need to succeed, and relying too heavily on AI-powered educational tools can have a negative impact on students. Edtech companies should aim to develop AI tools that augment, rather than replace, the role of teachers and provide students with a well-rounded education that includes both personalized learning and human interaction.

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# Other challenges of AI

In addition to the challenges related to AI implementation discussed in this article, there are also challenges in **the availability of AI around the world**. In particular, while some countries are already making great strides in AI technology, others are struggling to conquer much easier technological advances. In addition, there are many **legal and ethical concerns** surrounding AI, as the data it needs is sometimes subject to data protection laws. Not only that, laws often vary from state to state, and EdTech companies struggle. For these reasons, numerous talks are already underway between companies and governments to establish **regulations** to ensure transparency and security. Despite the many challenges that the implementation of Artificial Intelligence poses to companies, governments and institutions, it is essential that they overcome them in order to enjoy its benefits and become part of the future of learning. It is hoped that as AI research intensifies, the limitations and issues surrounding it will slowly dissipate.