THE ROLE OF ARTIFICIAL INTELLIGENCE IN THE MANAGEMENT OF E-LEARNING PLATFORMS AND MONITORING KNOWLEDGE OF STUDENTS

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ABSTRACT

E-learning was driven due to the current state of things and the COVID-19 pandemic and global lockdown. According to the forecast even before the coronavirus, the worldwide e-learning market was expected to grow to $325 billion in 2025. The technology evolves with new features added and possibilities opened. If you want to know how AI (artificial intelligence) can improve your e-learning solutions, *monitoring knowledge of students, management of e-learning platforms, then you have to read this article to the end.*

Keywords: *ICT in Education, E-learning,* artificial intelligence, *Machine Learning, Deep Learning, monitoring knowledge, AI technologies.*

АННОТАЦИЯ

Электронное обучение было вызвано текущим положением вещей, пандемией COVID-19 и глобальной изоляцией. Согласно прогнозу еще до коронавируса, мировой рынок электронного обучения должен был вырасти до 325 миллиардов долларов в 2025 году. Технология развивается, добавляются новые функции и открываются возможности. Если вы хотите узнать, как ИИ (искусственный интеллект) может улучшить ваши решения для электронного обучения, мониторинг знаний студентов, управление платформами электронного обучения, то вам следует прочитать эту статью до конца.

Ключевые слова: *ИКТ в образовании, электронное обучение, искусственный интеллект, машинное обучение, глубокое обучение, мониторинг знаний, технологии искусственного интеллекта.*

INTRODUCTION

We hear the term "AI" used everywhere, in news, social media, and at conferences, but not many people know what this concept *really* means. It is often used to refer to other complex algorithms that do not qualify as AI at all. Sometimes AI is used interchangeably with other terms like "Machine Learning" and "Deep Learning", but they're not the same. In fact, ML is considered a subset of AI, and DL is actually a sub-field of Machine Learning. Machine Learning is one of the most common types of Artificial Intelligence. Machine learning is primarily used to process large amounts of data quickly. IBM[1] says "*Artificial Intelligence (AI) leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind*".

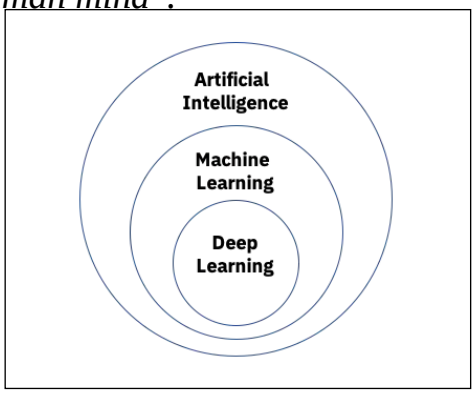

Fig 1. This graphic by IBM clearly shows the relationship between concepts

An what is Artificial Intelligence in the context of eLearning? According to **eLearning Industry** "An AI-based eLearning platform is a machine/system that possesses the ability to perform different tasks requiring **human intelligence**. It has the ability to offer solutions to human-related problems, like speech recognition, translations, decision making, and much more."

Why Use AI in eLearning? The traditional corporate training model presents some common challenges, including:

- **Too much content and way too long:** Most traditional learning programs still are made of long-form modules. And creating an hour of such training content requires way too many hours. This overwhelms people very easily!
- **Lack of personalized experiences**: Because content creation is time-consuming, eLearning courses are often too generic and do not adapt to the specific needs of each employee.
- **Don't really track the program's effectiveness:** Calculating the ROI of traditional training involves time-consuming data collection and entry processes.
- **It doesn't match the digital workforce existing needs and expectations:** training is no longer an initiative that happens once or twice a year but

is an ongoing process. Today's workforce (including mostly millennials and Gen Z) prefer to self-manage their learning experiences, according to a LinkedIn Learning report.

In the future, we can expect that many processes that today fall on people will be in charge of artificial intelligence, but it is not to be alarmed: this only means that people will be better trained and that they will be able to take on more complex tasks. By harnessing the power of Artificial Intelligence, companies can offer personalized learning at scale to save both instructors and employees time, allowing them to focus on more critical tasks. And thanks to the benefits we discussed earlier, such as adaptive learning, advanced analytics, and time optimization in the creation process, employees will be more engaged and more interested in learning, resulting in better results and increased productivity.

Main Body. AI market is forecasted to reach $190.61 billion by 2025, reshaping a lot of industries, including e-learning. Thus, AI is a trend in 2020 and beyond. The implementation of AI technologies in e-learning allows us to leverage e-learning solutions (LMSs, LXPs, LAPs, etc.) to a greater extent. Yes, AI is transforming the way we learn, unlocking new and new educational possibilities. And here are 8 ways AI dramatically changes the e-learning industry.

Define Learner's Pathways. One of the key features of AI is the ability to gather and analyze the data of the individuals each time they interact with the technology. That's what can help to define the learner's pathways through the education process more efficiently. According to the questions asked by the end-user, AI technology can:

- Determine the next level to achieve by the learner;
- Direct him/her to that level by providing the relevant content;
- Help to get there in line with the learner's already acquired skills, knowledge, experience as well as individual learning style and pace.

Personalized Tutoring Session. It's no secret anymore that the learning process is not a one-size-fits-all solution. Every learner has its own learning style, pace, and abilities. Today we used to get personalized shopping and entertainment, so why not personalize the education?

Trending AI Articles:

1. How to automatically decked (straighten) a text image using OpenCV
2. Explanation of YOLO V4 a one stage detector
3. 5 Best Artificial Intelligence Online Courses for Beginners in 2020

4. A Non-Mathematical guide to the mathematics behind Machine Learning

Just like Amazon or Netflix personalize the content, list of recommendations, and ads according to the user's preferences, likes, previous buys/watched movies, AI technology can customize the tutoring sessions to the learners. So that AI implemented in the e-learning solution can:

- Track the learner's previous performance;
- Identify the gaps in the proficiency of each learner;

Use the data for alerting the educational materials accordingly, thus personalizing the learning experience.

Content Analytics

Online learning means the great pool of materials inaccessibility: texts, documents, media, audio, images, and so on. Usually, the major part of all the data is unstructured and it's a challenge for teachers and administrators to process it accurately. AI has the ability to process and analyze large data sets quickly and efficiently, providing both teachers and users with the ability to get more out of the course materials.

Thus, the technology implemented can spot patterns and trends; get insights about the individual learning style, pace, and gaps of the learner; and after that highlight that to the user for interpretation of the data and further decisions.

More Targeted Marketing

Currently, many businesses collect more user's information than they need to and know what to do with. Such big data collected can be really overwhelming for companies because it must be safely stored somewhere. Besides, due to the fact the companies can't properly process all the gathered info, they can't offer targeted marketing.

First and foremost, AI can identify which data points are crucial and relevant, and then stop gathering unnecessary user information. Besides that, technology can analyze the data more efficiently to deliver better-targeted marketing materials and advertising. Thus, the most engaged audience will see your online course ads.

AI-based Virtual Assistance

Virtual assistants have become a common thing in our life and work. They provide help, answer the questions, guide us on various matters, and so on. Thus, AI-based chatbots are cost-effective, fast, and accurate assistants in different fields like shopping, healthcare, etc. They can be also used for providing real-time support in education.

Besides the around-the-clock counseling, AI-based assistants can understand the human language and respond in a conversational manner thanks to machine learning (ML) and natural language processing (NLP). Due to the NLP, the virtual assistants can monitor the user's behavior, provide additional educational materials, impart expert knowledge, give custom-tailored feedback and guidance, and on and on. Thereby the technology boosts the engagement and productivity of the users.

Deeper engagement with Virtual Reality (VR)

A combination of VR and AI technologies can level up online education. With a mix of the solutions, you can create online training simulations and provide the users to go through in detail real-life scenarios. Thus, the learners can immerse themselves in a learning environment, study the subject deeper, get some practice, and gauge the understanding of the subject, etc. Besides that, such interaction can enhance the user experience and improve their engagement.

Automatic Grading

Besides all the aforementioned capabilities of the AI technologies, by integrating the solution you can also leverage powerful automation tools that facilitate grading. Integration of the solution can hasten the process of checking and grading the learners' papers in different languages. It frees the time of the teachers for preparing materials for online courses, communication with the learners, and so on.

Real-Time Questioning

AI is fast, accurate, and efficient when it comes to responding to queries. Sometimes, it's vital to get some answers immediately without needing to go to the teacher or searching the info on the net and disrupting the learning process. AI technologies can process user queries and respond to them in real-time with all the reasoning and clarification conveyed. AI integrated into the e-learning courses also reveals the resources, suggests learning assets, and eliminates the efforts and time needed to do all that manually.

Bottom Line

Such emerging technologies as artificial intelligence are transforming a lot of industries, including e-learning. AI implemented into the e-learning solutions helps to:

- Create custom-tailored learning paths;
- Personalize the online courses, providing the relevant materials to appropriate learners;
- Analyze the content for improving the engagement of the learners;

Make the learning process and grading more automated and efficient.

Definitely, AI has boundless potential in the education industry. So, the integration of technology becomes vital for staying competitive. Certainly, it takes some time to take over the entire industry, yet AI technology is reshaping the way we learn here and right now.

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