

# EdTech

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## 1. What is EdTech?

EdTech can be defined in many ways, as it encompasses a wide range of activities. Perhaps the simplest way to explain the process is to translate it: the combination of the words “education” and “technology” refers to hardware, software, and related tools designed to enhance learning.

Another aspect of EdTech is “facilitating learning and increasing performance through the creation, use, and management of appropriate technological processes and resources,” as described by the Association for Educational Communication and Technology (AECT).

So EdTech is the process of using technology to improve and develop the educational environment and learning and teaching progress.

So it is not strictly about computer equipment, or not only about it, because this form primarily covers the entire process, i.e. the use of digital tools to create and distribute educational content, educational materials, and also to track their effectiveness in the learning process.

According to one source, the beginnings of EdTech date back to 1954, when BF Skinner, a professor of psychology at Harvard University, experimented with machines and in his Natural Sciences 114 classes he was supposed to use machines to improve the educational experience of his students. Since then, the concept has undergone a significant transformation, expanding its scope, but also using new tools.



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## 2. Goals of EdTech

### 1. Improving learner outcomes

In the light of the EdTech definition, the main goal of educational technology is to improve learning and teaching outcomes.

How is this possible in short? Using digital tools, teachers are able to adapt educational materials to different learning styles and design the teaching process in relation to students' abilities.

### 2. Individualization of education

Another goal of EdTech should be increasing individualized education. Current education, like current youth, needs an individual approach to learning, recognizing personalized potential and taking into account the unique needs and interests of each student, which is to lead to more effective learning. EdTech can provide such opportunities, provided, however, that the available tools are used skillfully and effectively.

The teacher is to play an important role in this topic, despite the fact that it may seem that information technologies minimize the role of educators and reduce the burden of teaching on teachers.

### 3. Increasing accessibility and inclusiveness

EdTech is primarily accessible education not only from the point of view of time, but also needs, because it has the potential to adapt to students with disabilities and unique needs. It provides extensive resources and the previously mentioned personalization of learning.



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In addition, EdTech gives the possibility of using its resources at any time. Individual tools offer time-unlimited access for any interested student.

#### 4. Modern motivation

Educational technologies are modern in a way that young people like, but not only - therefore, using motivating factors such as virtual reality, AI or gamification, EDTech is interesting for the users, and therefore engages in a different way and encourages to continue learning.

In addition, some tools, such as educational applications based on gamification, have the ability to reward users - and in this case mainly pupils or students - for their results or achievements, which makes learning more attractive.

#### 5. Promoting collaboration

Platforms for collaborative editing of documents or online discussion forums support teamwork by enabling students to work together on projects, and also broaden the horizons of not only students' education.

However, EdTech is not only collaboration between students, but also between teachers and even institutions not only of national scope, but also from different parts of the world.

#### 6. Supporting professional development and lifelong learning trends

EdTech enables keeping up with the latest teaching methods, so that teachers are well-prepared to deliver high-quality education to their students.

In addition, online courses, webinars, and e-learning platforms are not only for teachers, but enable people of all ages to continue their education in non-traditional ways. As a result, educational technology essentially promotes a culture of continuous learning and implements the idea of lifelong learning.

### 3. Basic Features of EdTech Tools

The features of EdTech can of course be listed in relation to the goals. The most important of them are:

#### 1. Accessibility

Accessibility is a basic assumption of EdTech, as it is also directly related to its main goal, which is to break down barriers and be open to everyone.

#### 2. Interactivity

EdTech tools use modern elements – such as AI, virtual reality – to achieve educational goals. This makes the process interesting for learners. It is no surprise that interactivity is one of the basic features of EdTech.

#### 3. Possibility of assessment

Teachers can use educational technology tools to pay attention to elements that students do not understand, because EdTech allows instructors to identify educational gaps by verifying and assessing progress in learning.



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## 4. EdTech in Education

Educational technologies come in a variety of forms, allowing for learning to be tailored to the different needs of learners.

Here are the main tools that teachers already have at their disposal to make lessons more interesting, but also to engage students in a unique and innovative way.

- e-learning platforms and online courses,
- videoconferencing,
- webinars,
- educational podcasts,
- clouds in education,
- virtual classrooms,
- discussion rooms,
- instant messaging, chats.

Here is a short description of several forms of EdTech that can make the education process more interesting and modern.

### E-learning

E-learning covers a very wide range of educational solutions – it is a variety of multimedia forms, animations, video learning and podcasts.

It is also worth mentioning Blended Learning here, i.e. a mixed form in which many courses and lessons are created. Some classes are held online, and some in a stationary form, which focuses on consultations and explaining difficult or troublesome issues.



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## Gamification

Gamification offers modern students education by introducing elements of game and competition, which in turn makes the process fun, introduces a friendly learning environment, and at the same time ensures the attention and involvement of learners. Of course, the use of gamification elements both in higher education and even at work also brings very good results for the same reasons – it is easy to acquire knowledge when we have fun while doing so.

## Video-assisted learning and VR

Videos are used in learning – this is not new, but their scope and function are currently being expanded. Films or animations make the content more understandable, because they use images and sound to clarify more difficult issues or introduce new topics in an interesting way for the student.

Virtual reality is also used in learning processes more and more often. In virtual reality you can already take first aid or health and safety courses.

## Artificial intelligence

AI has entered our lives in every dimension, but it already has its place in education today. It checks students' results, answers students' questions or supports learning foreign languages.

And this is just the beginning, because the aim is to use AI to, for example, detect more talented students or adjust the pace of learning to the student's abilities.



## 5. EdTech, why not?

Currently, it is difficult for a teacher to teach according to a demanding and often overloaded curriculum, to keep the best students engaged in their work, and at the same time to catch up with students at a lower level. EdTech can potentially lead to better results for individual students by adjusting the difficulty of tasks more quickly. However, this is also the reason why there is some controversy about EdTech. It is primarily about a partial change in the role of the teacher. The development of educational technologies is supposed to reduce the teacher to a more facilitating role. When each student works with a curriculum adapted to them, the teacher uses the insights given by the EdTech software about the strengths and weaknesses of the student, may act only as a facilitator of the process.

Another criticism that EdTech has to deal with is the fact that knowledge in this process is usually delivered via electronic equipment - a laptop or tablet, which means that the student experiences the learning process in a special reading and reacting mode. Critics argue that this form of serving knowledge can leave other types of learners – for example kinesthetic – behind.

From another perspective, EdTech using artificial intelligence can lead to data collection and, consequently, to the tracking of both students and teachers, or even entire institutions.



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## 6. Summary

Although the idea of EdTech is not new and has slowly been gaining its place in education at primary, secondary and university levels, it was only the pandemic that caused a real surge in interest in this topic.

Schools and universities, as well as other entities interested in education and science, have invested in the use of technology to overcome the gaps in learning that began to become visible during the period of remote learning.

First of all, it should be noted that the profile of learning has changed over the last five years, and the development of EdTech has also introduced other changes:

- physical textbooks have been partly replaced by online learning modules,
- learning has become more accessible to students of all ages and with different requirements,
- learning at different times of the day is possible – learning can be adapted to the student's routine.

EdTech innovations provide versatility and diversity of learning opportunities, and above all, greater flexibility of learning for everyone. Therefore, further intensive development of educational technology tools is expected, and in a few years, learning will no longer be without these modern elements – the way of teaching should adapt to the changing world and the profile of learners.

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