SELF-LEARNING IN AI ERA

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Abstract. The article examines the phenomenon of self-learning in the context of the development of artificial intelligence. It analyzes the potential of AI technologies for personalizing the educational process, increasing access to knowledge, and fostering lifelong learning skills. Special attention is given to the advantages and challenges of self-learning, including issues of information overload, digital inequality, and ethical risks. The study demonstrates that artificial intelligence contributes to the transformation of educational models and requires a rethinking of the teacher's role as a mentor and facilitator. The author concludes that a balanced approach to the implementation of AI in education is necessary for the effective development of future skills.

Keywords:*self-learning, artificial intelligence, digital education, personalized learning, lifelong learning, educational technologies, information overload, digital inequality, adaptive learning, teacher's role.*

Introduction

Self-learning or independent learning, as the term is used in educational studies, more and more frequently characterizes the new paradigm in the development of educational models and practices. With a transition to a new model of education it is acknowledged that traditional models of education are not in a position to arm a contemporary citizen for the ever-changing needs of society and the market. Self-learning today above all relates to an era dominated by technological progress. Artificial intelligence (AI) in the first place changes demands that are put on individuals in a variety of settings. The key to dealing with these changing requirements effectively consists of individual growth, or the development of the learner's cognitive skills and their application. These tasks, in the final analysis, can be addressed effectively through self-learning, or independent learning. For self-learning in a technological environment not only promotes learning that is suited to the individual, it also helps a person to adapt effectively in a constantly changing environment, which is characterized by the obsolescence of learning and skills within a very short space of time. In this sense, self-learning is also seen to foster a learner who engages in lifelong learning.

However, there is a number of opportunities that self-learning brings. The various AI technologies facilitate the self-learning experience and support the individual in his or her unique learning environment. Algorithmically controlled systems are used to process user data to create learning paths that are adaptable to a learner's current status, skills and knowledge. Thus, these learning paths are individualized to support a learner in achieving his or her goals in the best possible way. Furthermore, the learner can go through the study material as fast as he or she wants, and in the order that he or she prefers. If the learner wants to repeat a part of the study material in order to get a better grasp of the subject matter, then he or she can do so. On the other hand, if the learner wants to skip a part of the study material and move on to another part, then he or she can do so as well. This aspect of self-learning is crucial, because it has a positive impact on the learner's motivation to continue learning. As is stated in the research conducted by Ельшина et al. (2025), the opportunities and applications of AI in various learning environments, support learners in their learning processes. Intelligent tutoring systems, virtual learning assistants and online educational platforms that are fueled by AI, provide the learners with learning contents that are suited to their individual skills and previous knowledge and that can be modified on the fly in response to the learner's progress. Hence, by using self-learning and AI technologies, the learning experiences are not only optimized, but

also fitted to the individual talents and requirements of learners. This also prepares learners better for their future challenges.

Opportunities to grow and adapt with AI exist in profusion. The use of artificial intelligence in individual self-learning experiences leads to the increased opportunity of access to individualized educational resources for persons all over the world, across disciplines and subject matter within a variety of educational resources. This use also facilitates the ability of learners to cultivate a number of "soft skills," including critical thinking, creative skills, and a host of interpersonal communication skills that are currently in high demand in a growing number of global workplaces. AI-powered educational tools allow for a number of simulations, among other resources, that assist self-learning individuals in cultivating a host of skills that are employed in real-life scenarios in a variety of academic, professional and personal settings. As noted by Kassymova and colleagues (2025) when learning with AI in individual self-learning experiences, a person can acquire and develop a number of unique educational resources in addition to developing needed academic skills and knowledge (Kassymova, 2025, p. 12).

On the other hand, a range of challenges face individuals and/or learners who make use of these technologies. First, the information that is offered up to a learner via AI can lead to information overload. Furthermore, it is possible that a learner may struggle to determine whether the information obtained via AI sources is valid or not. The capacity to become a media literate learner in order to negotiate information and to critically evaluate information sourced from AI has thus become an extremely significant factor for many self-learning individuals and/or learners. In addition, a number of ethical challenges presented by the increasing use of AI have, to date, not been sufficiently addressed. Challenges that pertain to AI use in general and in terms of data privacy, as well as AI-bias. Of greatest concern are the immense disparities that exist with regard to access to technology that is sufficient to facilitate a quality learning experience. Despite an array of technologies designed to democratize access to learning resources, existing socio-economic challenges which affect all aspects of life are heightened when it comes to technology-based opportunities for learning and, consequently, for growth and development in a number of areas.

Results and discussion

The AI era is transforming the world, offering self-learning opportunities that allow individuals to acquire individualized growth and adaptability. This new educational environment uses AI technologies to create a variety of tools that can offer to support learners and their self-learning endeavors, thus enabling them to grow and develop into adaptable individuals equipped to face life's challenges. Self-learning that is supported by AI can create learning opportunities that are particularly individualized to each learner, which enables them to grow and develop as individuals while increasing their understanding and grasp of information and gaining new skills. Opportunities for individualized growth that are enabled by self-learning AI tools and platforms offer new opportunities to reach a wide audience of learners and thus equalize access to the tools and skills they need to adapt and to grow in an information-based world, to acquire the required knowledge and acquire the skills that are relevant in today's world. Opportunities for growth, which are increasingly open to people all over the world thanks to the Internet, can offer support to individualized self-learning programs and support tools, thus supporting each learner in achieving their goals and reaching their full potential, throughout their lives, while developing into versatile, resourceful and adaptable individuals.

The digital transformation of education enables access to a wealth of knowledge stored on online platforms and thus opens up new opportunities for learning. The range of resources available to learners often is affected by geographical and by socio-economic barriers. The AI era, however, is characterized by easy access to knowledge by any individual at any time and

from any location. Thus, by using online platforms for learning, which are supported by AI, the vast resources of knowledge can be discovered by learners as they are recommended to them on the basis of their behavior and preferences. Thus, in the context of AI-supported self-learning, all individuals, regardless of their background, can acquire knowledge and skills and enrich themselves in the same way as those who complete traditional education and are thus able to enhance their employability and also to engage in lifelong learning, which is becoming increasingly important in today's economy and requires continuous acquisition of new skills and knowledge.

However, skill development is also necessary in order to prepare employees for changes in industries. Thus, self-learning, thanks to AI, will help individuals to constantly update their skills and obtain new knowledge and experience in order to find best jobs and to be able to perform them efficiently. At the same time, AI-based platforms for self-learning, with the help of their analytics, will show learners skill gaps in the labor market and help them to obtain necessary skills and knowledge in order to be more competitive on the labor market. Thus, the culture of adaptability will be created, and individuals will be able to not only work efficiently in their current jobs, but also to look for new jobs, to find best jobs for them, and to grow professionally.

As already noted, self-learning using AI provides great opportunities for personal growth and development, however, in addition to these opportunities, there are also number of challenges and possible limitations, which will be discussed below in order to find ways to improve the self-learning experience and thereby to facilitate individual's growth and learning.

Many educators today are worried that there is an increasing danger of information overload. One of the biggest problems with learning today is that there is so much information coming at learners from so many different sources. And, above all, so much of that information is, in fact, irrelevant and of little or no use. In order to learn effectively, a learner has to be able to focus on the information that is really relevant to his or her learning goals. Yet, in many cases, the volume of information that a learner is exposed to can create what is known as 'cognitive overload' – in which the amount of information that a learner is expected to process exceeds his or her capacity to do so. In some cases, this can lead to learners becoming disheartened and demotivated as they are unable to make sense of the vast amounts of information with which they are presented. In other cases, the simplest solution is to ignore some of the information. Yet, this can create a major problem, as there is no guarantee that the information that a learner chooses to ignore is not, in fact, the information that is most relevant to his or her learning goals. As Virk (2022) noted above, algorithms that support self-learning can, no doubt, help to find the relevant information, but there is, as yet, no program that can initiate a learning program, or support a learner through it, on the learner's behalf.

A number of challenges have been identified that obstruct the process of self-learning through the use of technology in today's fast-changing world. The greatest single challenge is that of information over load, where it is argued that there is such a vast amount of information available that it is impossible for individuals to sort through the material and identify that which is of greatest relevance and importance. The reliance upon technology for information in an environment where there is a constant change can place individuals in a state of catch-up. Those that engage in self-learning must learn new skills at the same time as they have to unlearn outdated ways of working. For individuals without prior experience of technology, or those without adequate formal education, there is every likelihood that they will harbor feelings of failure and inadequacy as they attempt to adapt to changing technologies and the ways in which they are able to be used. The swift adaptability of a number of individuals to new technologies will create considerable variation in terms of the degree of competency that they will possess and thus pose further problems in terms of identifying the most appropriate method of learning that will assist individuals in dealing with the vast array of skills that are currently required.

Other barrier relates to inequitable access to tools, technologies, resources and information that support self-learning, irrespective of background. While technology democratizes information or knowledge for some, it can also present number of real barrier to those from marginalized groups and underprivileged communities or developing countries. These include: limited access to stable, affordable, and reliable Internet connectivity, and the necessary devices to access online resources. Many learning materials or resources are not translated or adapted for learners who speak different languages and come from diverse backgrounds. Other barriers to access include cost of online resources, or the lack of inclusive resources that are culturally and contextually relevant. Addressing inequity and creating inclusive environments that support learning in context is essential, and policy and governance have critical roles to play.

Conclusion

Future direction of new learning methods. In summary, self-learning offers a multitude of opportunities for growth of individuals learning to deal with the technological revolution. However, in order to facilitate effective learning and also to develop in learners abilities to deal with changing circumstances, it is necessary to look for solutions to a multitude of challenges encountered in the process of learning. As noted earlier, the learning process is becoming and will continue to be highly complex. In Virk (2022) one can find information about many of the individual and group-based challenges that can be encountered by learners in the process of self-learning, as well as ways and methods to deal with them.

Therefore, in search of future of the education, the necessity for adaptation to change of the learning methods is highlighted. Currently, there are implemented so called traditional learning methods (usually understood as classic), which are confronted with huge challenge in form of new technologies, i.e. rapidly developed and implemented by companies all over the world, as well as rapidly changing business environment and learning requirements in line with changing requirements of job market. As stated before, for the needs of development, adapted learning methods are necessary. The majority of already implemented learning methods (often called traditional) in classic, in the form of lectures, training sessions etc., are not adequate and therefore, are threatened with gradual decay. New learning methods, thanks to AI, enable the individual learning process, so that everyone can learn at their own pace, at any place and at any time, using so called personalized, learning paths. As stated by Bryndin (2024; 2025), AI used in education allows for more in-depth learning, which will be in line with job market requirements, when companies implement new technologies, which are developed and implemented by companies all over the world. Therefore, new future of the education is not only about disseminating knowledge, but also about a possibility of searching and experiments and about self-learning.

Self-learning and adaptive methods therefore bring many benefits, however there are many challenges that need to be addressed, for example, information that learners can access for personal development can sometimes be overwhelming for learners, and be of poor quality. Educational leaders and policymakers need to ensure that technology is used to enable all learners to have access to resources, that enable self-learning and adaptability.

AI-supported systems, on the other hand, can be used to support self-learning. The key role of a teacher is therefore that of a facilitator. He or she guides the student in order to assist them in processing and making use of information, and in achieving their learning objectives. The task of the teacher is thus significantly increased in the case of self-learning, because the teacher not only has to select appropriate information, but also to ensure that the student is able to make use of it effectively. It is therefore important for teachers to possess the necessary skills in order to support students who are working with digital information and using autonomous systems to support their learning. The potential of self-learning, combined with the use of

autonomous systems, to create value in a wide variety of fields, including management and organizations, has recently been the subject of considerable research (Wodecki, 2020).

In summary, in order to empower individual through the era of AI, we should adopt a balanced approach between opportunities and challenges that this technology presents and create a learning environment that encourages individuals to develop skills of self-learning and to apply latest technologies that support this process in order to effectively prepare them for future workforce that will require constant flexibility and creativity.

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