THEORETICAL INVESTIGATION OF ARTIFICIAL INTELLIGENCE IN THE CONTEXT OF EDUCATION - TRAINING

Yakup BASATOĞRUL

MEB., yakupbasatogrul@hotmail.com, https://orcid.org/0009-0001-4370-517X

Erhan BUĞU

MEB., erhanbugu@gmail.com, https://orcid.org/0000-0002-4813-6674

Melek BUĞU

MEB., melekbugu1015@gmail.com, https://orcid.org/0009-0005-1927-1657

Sinan ŞEN

MEB., sinansen1978@hotmail.com, https://orcid.org/0009-0008-4128-9791

Soner SAVAK

MEB., savaksoner456@gmail.com, https://orcid.org/0009-0002-6389-5465

Ayşe GÜNEŞ SAVAK

MEB., aysekeremgunes@gmail.com, https://orcid.org/0009-0000-5297-8682

ABSTRACT

Artificial intelligence technology has become an integral part of our daily lifes and has become an indispensable tool used by people on a daily basis. When it was looked at daily life, these technologies are located in service areas on every platform with various tools, equipment and software applications. The application areas of artificial intelligence can be illustrated with various examples from various fields such as cyber security and defense industry, virtual assistants, language translation, search engines, recommendation systems and healthcare. The widespread using of artificial intelligence technology, which is used in many fields, in the field of education has brought about major changes in education and has developed the changes in education in a positive way. According to a literature review, artificial intelligence tools that provide private tutoring in education have many advantages for students. These benefits are "To promote higher engagement and improved educational achievements by providing personalized learning experiences for students.", "To enable educators to apply effective teaching techniques, taking into account students' academic background and learning environment.", "Automatically monitor and evaluate students' progress, "Providing rapid feedback and supporting teachers to adapt their teaching methods accordingly.", "Ensuring equal opportunity in education." It is in the form. It can be said that artificial intelligence should be used more effectively for the benefit of students since it affects educational environments in the context of education and training. Measures can be taken in educational environments and educational processes to protect students from the harms of artificial intelligence but to enable them to benefit from its advantages. These measures can be said to be activities such as trying to teach coding education, which forms the basis of artificial intelligence, from an early age.

Key Words: Theoretıcal, artıfıcial, intelligence, artificial intelligence, education

1. INTRODUCTION

Massachusetts Institute of Technology (MIT) Artificial Intelligence laboratory manager and Carnegie Mellon university teaching from its members Edward to Fredkin according to history along occurred has arrived fly important situation promise is the subject (Arslan, 2020).There are three factors. First is the universe formation second is the latter of life and the third is the life to the beginningequivalent degree deemed important another one event whereas artificial intelligence (AI) emerge is the output.

With the rapid development of information and communication technologies, AI is now included in education. about the field to be used. Various problems to solve for academic in research increasingly more and more are used. Personalized learning ways and to address complex scenarios in education, such as adaptive assessments. AI has the potential to transform the way education and problem solving are approached. Owner is is seen (Ahmed and Malik, 2020).

As technology advances rapidly, people in society information and communication technologies effectively way use to one's skills owner to be is required. Moreover, expertise in the fields crude datas to knowledge should transform creativity and with innovation to their environment contribute should be available and own themselves sufficient while being spherical to competition foot. They should make it up. These requests are undergraduate and graduate levels of technology for the benefit of both individuals and societies, also including to be about of higher education all at levels to education integrated to be necessityemphasizes (Daniela et al., 2018).

Berlin and in Vienna organized "Bologna Digital 2020" in workshops, Europe high educationin the field 21. century higher education for   basis your difficulties, digitalization with teaching and learningof the quality increasing, to educators and to students digital age of your skills to gain, education programs in society and labor in the market developments reflecting reaction to give education of their environment accessibility and of quality, creative new learning in the fields of digitalization support with can be overcome highlighted (Rampelt et al., 2019).

In education digital transformation and new technologies used with communication, critical thinking, creativity, work union, digital readership skills able to gain your qualities front to the plan by removing it, students are no longer affected by the education process and become a component bringing, while targeting. These studies can be seen (Taşçı and Taşlıbeyaz, 2021). A difference between online and offline education preference rather than do. These two education model of synthesizing were considered to be more beneficial. In this

21

regard, courses are designed by taking into account the student's habits and development, academics students drink your visions to know, transmitter. One factor from being come out and student qualified and various information resources to be able to direct importance increasing.

New technologies digital transformation by to education integrated to be, student passive one communication, critical basic skills such as thinking, creativity, collaboration and digital literacy skills are very important.(Kocaman-Karoğlu et al., 2020; Sürer, 2020). Online and offline instead of choosing between educational models, a combination of the two is beneficial (Tkachov and Makhnovsky, 2021). This is in the direction, students' habits and development stages eyelash in front containing lessons design a lot is important and educators should provide their students with high-quality and diverse knowledge rather than merely imparting knowledge.resources should direct.

Today, with technological developments, objects internet, smart factories, digital production, simulation, mixed reality and artificial intelligence like concepts in our lives place to takehas started. With these changes and developments in technology, emerging and fourth industry revolution aspect expression made Industry of 4.0 to your needs reply will give the realization of digital transformation in the education world is referred to as Education 4.0. Education 4.0 with together innovation weighted education, entrepreneurship, digital. The abilities are learnt such as literacy, collaboration and creativity gain importance, lifelong learning among the basic missions of institutions. It is thought that it will take place in the 2018). Education 4.0 with together intended to goals reach for technological developments rapport providing and to the future direction giver innovator education understanding compulsory It makes. Education 4.0 with together to individuals Industry 4.0 to your needs reply will give and personalized training, games and games to provide skills that will lead change based learning, project based learning, video, augmented reality and virtual reality like The requirements of using approaches and materials are emerging (Arıkan and Saper, 2018).

2. ARTIFICIAL INTELLIGENCE

2.1. Definition & Framework

Dreyfus (1972; Atasoy Aktaş, 2021) "artificial" the word, researchers one human being completely artificial one copycreate wanted means that you didn't come, biological one order in its place, digital. One system inside intelligent behaviours to exhibit you focus on emphasized. "artificial" word, artificial aspect created of vehicles person of your mind he thinks way able to think machines expression to do for used often is seen. "Intelligence"

concept whereas, former experiences using new situations understanding and solution ability to produce; learner and from what is learned usability ability aspect expression is done. Solution be able to produce for, peoples former they need to develop an approach based on solving the problems they encounter in situations. This way, new situations to understand and solution to produce peoples former to your experiences They make decisions based on intelligence (Uzun et al., 2021). Machines are like humans thinking and action don't has the ability to be to ensure for the purpose of research from past to present, many people and organizations have been involved in "Artificial Intelligence", which is a field where conducts research and continues its studies (Russell and Norvig, 2022). But many with discipline related the one which... of AI conceptual to the definitions when viewed general aspect similar with expressions although it is discussed, it is seen that different definitions are made. Definitions of artificial intelligence have varied relatively throughout history (Long and Magerko, 2020).

John McCarthy (1998) defines artificial intelligence as the science and engineering of making intelligent machines and intelligent computer programs. While Slage explains artificial intelligence as heuristic programming, Ax defines it as programs that can create reactions to complex problems (Nabiyev, 2012). According to Nilsson (1990), artificial intelligence aims to imitate human intelligence. In this context, artificial intelligence is basically based on imitating human intelligence and performing operations that require intelligence (Arslan, 2020; Pirim, 2006).

Its foundations are in different fields of science such as mathematics, psychology, linguistics and computer science. based on "Artificial Intelligence" term first aspect in 1956 Dartmouth in college organized One emerged during the conference (Russell and Norvig, 2022). This John, who coined the term "Artificial Intelligence" at the conference and is known as the inventor of the term AI McCarthy, AI "intelligent machines don't do that science and engineering" shaped has defined (Toosi, Bottino, Saboury, Siegel and Rahmim, 2021).

AI aims to simulate human cognitive intelligence processes and structure intelligent systems. It is a scientific discipline that aims to According to Nabiyev (2012), AI provides human specific qualifications owner One computer or computer supported machine It can be defined as. People like finding solution way, understanding by using this systems. One meaning higher logical processes such as subtraction, generalization and learning from past experiences duties regarding can fulfill it. AI, machines becoming human-like thought and features by coding to learn, This experiences to review and to the development is a branch of

23

science that provides opportunities. In this way, machines adapt to new inputs. They can learn on their own and perform human-like tasks. Artificial intelligence transfers the unique thoughts and characteristics of humans to machines and enables these machines to human similar performance makes it possible to display (Akpınar, 2019).

In their study, Coşkun and Gülleroğlu (2021) defined AI as a technology that can think like humans and movement able clever of machines to the creation focused one computer science is the area shaped expression. According to Adipat et al. (2022), AI is a technology that tries to imitate some features of human intelligence. It is considered a branch of computer science concerned with the design and development of intelligent machines. These machines and systems use natural language processing, speech recognition, expert systems and machine to learn like techniques uses.

European Commission, High-Level Expert Group on Artificial Intelligence Artificial Intelligence (AI HLEG) defined the definition of AI in the report they published in 2019.""By analyzing their environment and achieving specific goals-with some degree of autonomy - systems that exhibit intelligent behavior by taking actions." They expressed it as (AI HLEG, 2019). Russel and Norvig (2022) divide AI approaches into two basic concepts: human and rational, dimension under, humanly thinking/rational thinking and humanly act/rational don't behave shaped four possible in the form of approach they stated.

24

When it was looked at AI from a categorical perspective, Narrow/Weak AI, General AI and Super/Strong AI are mentioned in the literature. shaped fly basis category under is evaluated is seen (LONG et al., 2021). These:

- Narrow AI: The most widely used type of AI and is generally designed for a specific task. trained. Therefore, narrow AI systems are often limited by space or limitations. Beyond process can't do it. However, narrow AI systems can be very important and useful. Current AI applications today "Narrow AI" to the category is entering (Ünal and Kılınç, 2020).

- General AI: A lot different in the field Good performance artificial that can show intelligence systems expression It does. This medicine AI systems, people like can think and A lot different task own per is to realize it. General AI systems, peoples can do and even couldn't do A lot process can realize (Cao, 2021).

- Super/Strong AI: Humans have the ability to think and even constantly by improving person of his intelligence A lot above One to intelligence owner AI systems expression It does. These types of AI systems constantly improve themselves to do things that humans can do and even couldn't do A lot process can realize (Black Kılıçarslan,

2019).

2.2. Artificial Intelligence in the Field What Happened Descents & Outputs

AI has experienced falls and rises throughout its development. These periods, in which the field was somewhat discredited after great expectations and goals were not met, state resources were cut and its impact in the real world was thought to be limited, were expressed as the "Winter of Artificial Intelligence" (New Scientist, 2021). Since its inception in the 1950s, the field of AI has been optimistic predictions and major investment periods, the "AI spring" will lead to disappointment, loss of confidence and loss of funds. It has alternated between periods of decrease and "AI winter" several times (Mitchell, 2021). AI Spring aspect called first development wave in 1956 Dartmouth Summer Research Project with has started. At that time, AI was mainly used in games such as checkers, the first robots and mathematical problems. was used to solve. However, at the end of this first wave of development TRUE unmet expectations and high finance expenses post- both USA both also English governments by finance supports big at a rate was cut off has been seen. The US government's ALPAC report in 1966 and the British government's "lighthill report" in 1973 target your research criticisms it contained (Audibert et al., 2022). These criticisms It was specifically aimed at areas such as artificial neural networks and cast a pessimistic view on the future of technology. in prediction There was. This of reports publication of next, USA and English governments, in universities AI to their research given support to reduce they started. This events, of AI development slowed down and to the 1980s much lasting first AI your winter started (Toosiet al., 2021).

The second wave began in the 1980s, partly driven by international competition between Japan, the USA and Europe and it was during this period that the first major commercial applications of AI, expert systems, emerged. It was also marked by the establishment of the National Conference on Artificial Intelligence (NCAAI). The reputation and funding support lost in the winter of AI was regained through the Fifth Generation Computer Project (FGCP) of the Japanese government.

Other countries have also restarted funding projects, such as the UK's Alvey project and DARPA's Strategic Computing Initiative in the US and this revitalisation has contributed to the acceleration of AI research and the development of technology (Audibert et al., 2022). But unfortunately in the early 1980s despite all the efforts and investments made, many companies and institutions fail to achieve their goals. could not reach. Developed of systems complicated to be, conflicting in the rules happened rapport problems and small mistakes

25

having negative consequences on the results lead to failures. caused. One of the important reasons why the targets were not achieved in these periods was need heard hardware infrastructure yet sufficient level is the absence of it. Therefore, the expert systems industry that flourished in the early 1980s declined tremendously and inevitably collapsed in the late 1990s, causing a second AI winter that lasted until the mid-1990s (Mitchell, 2021; Toosi et al., 2021).

The third wave started again in the 1990s with great successes in the field of symbolic AI, especially in 1997 when the Deep Blue programme defeated the world chess champion Garry Kasparov (Audibert et al., 2022). A few years later, AI studies gained a great momentum thanks to advances in machine learning and its sub-field, deep learning. Scientific breakthroughs in this field, the computational power of advanced computers and increases in data volumes have been the driving force behind this wave that continues today. In the late 1990s, after the discovery of the World Wide Web (WWW), it provided significant support for AI studies as a source of research and information in this field (Freitag, 2000).

Today, various technologies and applications have been developed in the field of AI and studies in this field are continuing rapidly. The concepts of deep learning, machine learning and AI are concepts that have been widely used in recent years and are related to each other. While AI is the broadest concept that includes machine learning and deep learning, machine learning is a subtype of AI and deep learning is a subtype of machine learning. Machine learning is a field of study related to AI that aims to enable a machine that tries to obtain its own knowledge by learning from raw data and experiences to perform a task on its own and with the best performance (Goodfellow et al., 2018).

26

Deep learning is a field of machine learning that provides more useful representations by providing more learning each time the data is processed in successive layers. Deep learning, which is an advanced level of artificial neural networks preferred for solving large volume complex problems, uses successive layers to capture features, detect connections and assist the learning process (Craft, 2018).

3. ARTIFICIAL INTELLIGENCE & EDUCATION

3.1. Artificial Intelligence & Education

AI has come a long way from the past to the present and has had a significant impact on higher education. The first efforts to create a virtual analogue of teachers by utilising technology date back to the 1970s when computers were first used in education. More later, 1982 and 1984 years between in the USA made a few study, I'd like to send a message by e-

mail one from people special lesson area students to those who did not receive according to a lot more good has demonstrated that it performs well and this makes such individual assistant trainers a on the machine again to create aimed at new One effort wave started (Hao, 2019). internationalization and globalization inevitable trends since, education sector, It would be beneficial to use AI technologies to improve studies globally. is stated. Artificial intelligence LONG for years education to the system including has been though in, new technologies with the development continually progress recording is expected. For example AI, Despite the strict regulations introduced by the World Health Organization (WHO) regarding the COVID-19 pandemic in education of progress in increasing an important role has played (Adipat et al., 2022).

Thanks to the technological advantages provided by AI and especially machine learning methods, training activities can now be transformed into a more intelligent and enriched structure by going beyond traditional methods. Today, data analysis and evaluation of outputs carried out with classical rule-based algorithms are replaced by data-driven machine learning algorithms. Thanks to these algorithms, it is possible to detect previously unknown information and patterns that have potential for use (Farhat et al., 2020). Machine learning methods are used in the development and design of tools for online education and training activities and in monitoring students' individual achievements. Thanks to these methods, the data produced by education systems are processed and various machine learning analyses are performed (Singelmann et al., 2019). In today's web-based online education, students can attend classes through online classroom applications or directly using a browser and participate in online teaching content in real time. Sharing teaching resources, collaborative work, allowing students to work anytime and anywhere without location restrictions are important advantages that form the core of online education and are provided by UE (Luo & Yang, 2022).

From digitized textbook guides to personal digital learning interfaces, "smart contents" creation, from primary education high school until later and work to their environment much each level is implemented. Content Technologies focuses on business process automation and intelligent training design focusing on to secondary schools and beyond aimed at One clever contents services package has developed (Park et al., 2014). For example, Cram101 uses textbook information uses AI to distribute chapter summaries, quizzes and flashcards consumable One "clever" study to the manual It transforms. JustTheFacts101, more simplified though in similar One to the target has; digital one your collection part of it aspect on amazon protected and accessible halo brought text and to the section specific resumes

27

emphasize and to create (Adipat et al., 2022).

Today, young people spend a significant amount of time on their smartphones, computers or tablets. AI their software provides opportunities for coursework. AI technology can detect students' emotions during lessons. It is very important in understanding and deciphering their current mood. This means that the machines are in front of the students having difficulty understanding taught content by perceiving and interpreting expressions and movements that they didn't experience to determine possibility recognize gesture recognition technology through is carried out. According to the results obtained, students can quickly understand and in order to change and simplify the content so that they increase their motivation to participate in the course. can be used (Adipat et al., 2022). Thanks to similar AI methods, users with the system interaction your data including learning management systems datas using, students their performance to evaluate and in inferences have for can be used. Based on this data, it is possible to determine success criteria (Jalota and Agrawal, 2019).

AI technologies can be used to personalise learning pathways, taking into account students' strengths, weaknesses, abilities and academic problems. AI can also help educators to develop personalised learning paths and analyse both qualitative and quantitative data. Furthermore, AI can be used to deliver educational programmes to students through learning environments that help to ensure the quality of distance education and effective teaching (Duggan, 2020).

Artificial intelligence systems that analyse students' learning style, learning speed and learning needs offer a more effective learning experience by personalising the learning process (Duong et al., 2019). While academic research on the use of AI in education has been carried out for more than 30 years, it is seen that there are a few important topics such as intelligent tutoring systems, pedagogical agents, smart classroom technologies and adaptive learning (Joshi et al., 2021).

3.2. Artificial of Intelligence in Education Implementation

Today, computer technology is widely used in almost every industry. This of technology forward levels between place area AI, a lot in the industry is like education teaching in the field in effective is happening. End in years AI of technology quickly with the development together, of AIin education use of increasingly more evident halo has arrived. of AI in education use to the fields when considered, adaptive learning, evaluation of teaching, virtual classrooms, smart teacher systems, clever evaluation systems, education robots like examples to eye it crashes. This Technologies enable teachers to do more by automating

28

repetitive tasks. It saves time and allows teachers to spend more time with students. student to the interaction contribution will provide is known (Huang et al., 2021). Moreover, AI technologies students individual to your needs and to your abilities according to personalized learning can offer experiences (Sekeroglu et al., 2019). In general, AI technologies in education use of, teaching of the quality and student learning of their output in improving positive to an effect owner is is seen (Kuo, 2020).

AI gives students smart a special learning experience in a learning environment by offering them personalized learning ways to create for available. Moreover, AI using students progress automatic aspect to watch and individual to your needs and learning to their style according to personalized back notification provides possible it could be. AI, educators the most effective teaching methods, taking into account the student's learning context and academic achievements to the application in helper it could be. Moreover in education AI, students online to learn and learning their environment adaptable learning materials and metacognitive with hints enrichments for new opportunities offers (Tapalova and Zhiyenbayeva, 2022).

According to Göçen and Aydemir (2020), some possible scenarios for the use of AI in education between high with technology software, robot assistants and teachers, clever classes, personalized training, simulations, interest/ability/needs analysis systems, career selection there are vocational guidance systems, survey programs or tools for in addition to this aspect each kinds unmanned systems, students levels for learning outcome detection systems, personalized teaching tools, attention analysis systems and academic achievement for improvement detection and recommendation systems for example is shown (Göçen and Aydemir, 2020).

In AI-based smart classroom systems, expert systems, natural language processing, artificial neural networks, machine learning and other technologies can be used. This technologies, students monitoring ways of thinking and problem-solving potential goal structures, diagnose and evaluate, provide timely guidance and feedback and difficulty levels and relating to with content learning activities plan for the purpose of can be used (Luo and Yang, 2022).

3.3. Personalized/Adaptive Learning

Adaptable learning, each student for customized one learning way plan for student learning behavior your data using one education technology. Teaching each your student student engagement, motivation and motivation by adapting to meet their unique needs.

success increase for test don't, teaching, learning and of the application all aspects unites (Huang et al., 2021).

Each your student needs to meet for learning materials, speed, order and learning that adapts the intensity to each student's individual needs and abilities to create an intelligent tutoring system or adaptive tutor that personalizes the experience AI technologies can be used. Moreover students subject shortcomings to determine can help students and guide them to new concepts when necessary. at speeds and own learning to their style according to adapted one way to learn possibility recognizes (Joshi et al., 2021).

3.4. Evaluation Systems

Image recognition, guess systems and computer opinion like AI technologies, student to its performance related more TRUE reviews while providing note don't give and your tests evaluation like operations can automate (Chen et al., 2020). Same in time identifying issues that students have personal difficulty with and providing feedback in terms of helping students learn and increasing learning efficiency It can provide convenience (Shen et al., 2021). Evaluation in their processes AI of use, your instructors work your burden to alleviate well order personal evaluation your mistakes to prevent also helper will happen it is stated (Huang et al., 2021).

3.5. Clever Class / Campus Applications

Clever classes, wireless connection, personal digital devices, sensors and virtual learning platforms including technology in terms of rich are classes. Class in cameras, microphones or movement It is possible to collect more personal data by using sensors such as sensors. Clever schools, student the results to improve and administrative processes facilitate for technology using education institutions. This clever education environments, students for   more interest attractive and effective one learning experience of creating well order teachers and managers for efficiency to increase aims (Joshi et al., 2021). AI, facial recognition, hearing and perception technologies using clever One campus to create for available. This technologies campus your security can increase, administrative duties can automate and to students personalized services will be able to provide. Intelligent management created by collecting and analyzing big data systems enable more efficient use of resources and more effective management of facilities. possibility will recognize (Villegas-Ch et al., 2019).

3.6. Education Robots/Chatbots

To students personalized support and guidance to present for AI supported from chatbots can be used. These chatbots can answer frequently asked questions, provide information about assignments, back notification can provide and your student to its performance based on aspect more more will be able to suggest a study. Teaching the use of chatbots in education, teaching lessons increasing participation, getting feedback, teaching assistant, student assistant, alternative learning It is stated that the system can be used for guidance function and evaluation of learning. is being (Tamayo et al., 2019).

3.7. Artificial of İntelligence in Education of Its Use Advantage & Challenges

In education AI of technology use of important advantages can provide. For example, students for personalized learning experiences by offering more high participation and developed education your achievements incentive is able to (Shen et al., 2021). Educators, students effective teaching techniques, taking into account academic background and learning environment to apply for AI can use. AI, students progress automatic aspect watch and can evaluate, provide rapid feedback and adapt teachers' teaching methods accordingly. according to adaptation about support they will be able to provide (Akgun and Greenhow, 2022).

The use of AI technologies in education will provide important support in terms of providing equal opportunities in education for individuals who speak different languages or have hearing and vision impairments and making education accessible to everyone. For example, AI-based system applications such as Presentation Translator can provide real-time subtitling to help people who speak different languages. Students can read and listen in their own language with the help of google translate. Furthermore, modern technologies such as virtual reality, augmented reality and gamification can also be integrated with courses to create more interactive lessons (Kengam, 2020).

AI should not replace traditional teaching methods, but instead students learning their journey enrich for them other with approaches it is important to keep in mind that it needs to be completed. Moreover of technology person to your life more to enter and people between of interaction down of people the risk of them becoming addicted to technology must be taken into consideration, otherwise to students help to do in its place damaged will be (Kengam, 2020).

UNESCO Institute for Information Technologies in Education Technologies in Education in its report published in 2020 on the use of AI in education relating to to the difficulties when viewed (Duggan, 2020); in the world all individuals considering

31

everybody's information to technologies access about equal and fair to the possibilities owner absence and this attention is drawn to the digital divide that has emerged as a result. With the use of AI in education relating to used of your data privacy, protection and with the use of relating to your worries next to you emphasis that issues such as racism and gender discrimination may raise ethical problems is being done. Technology addiction problem One other important problem aspect stated, used technologies in time will be updated, new features and user interface changes will occur and in this sense, instructors are constantly updated in terms of professional development. their stay It is emphasized that it is important.

RESULTS

Artificial intelligence technology has become an integral part of our daily lives and has become an indispensable tool used by people on a daily basis. When it was looked at daily life, these technologies are located in service areas on every platform with various tools, equipment and software applications. Driverless cars, smart home devices and smartphone applications are the most common examples of artificial intelligence technology. From another perspective, it is stated that very few people understand the concepts of application software and artificial intelligence, which are indispensable for technology (İşler and Kılıç, 2021). The application areas of artificial intelligence can be illustrated with various examples from various fields such as cyber security and defense industry, virtual assistants, language translation, search engines and recommendation systems and healthcare (Kayabaş, 2010).

32

Research on artificial intelligence shows that language learning difficulties and learning disabilities that occur after a certain age make natural language translation a very important situation for artificial intelligence (Kuşku and Güzeloğlu, 2015). In anthropological research, connections between human intelligence and language have been discovered and as a result of these connections, artificial intelligence research on language has attracted increasing attention. While google translate, a current and popular language translation application, entered people's lives with Arabic and English translation in 2006, Yandex translation application entered people's service in 2011. All these programs work based on artificial intelligence and update themselves.

Artificial intelligence, which is used in many fields, has also entered education and its positive effects have been seen. In this regard, İşler and Kılıç (2021) emphasized that the widespread use of artificial intelligence technology, which is applied to all areas of our lives, in the field of education can bring about major changes in education and can positively improve the changes in education. According to a literature review, artificial intelligence tools

that provide private tutoring in education have many advantages for students.

For the use of AI in education a few the main advantage is expressed as follows can be:

- Higher engagement by providing personalized learning experiences for students and Promoting improved educational achievement.

- Educators take into account students' academic background and learning environment effective teaching techniques to its applications to enable.

- Students progress automatic aspect to watch and to evaluate, fast back notification and encourage teachers to adapt their teaching methods accordingly. to support.

- Ensuring equal opportunity in education: AI technologies will enable people who speak different languages or are hearing- seeing disabled individuals for various resources by providing in education opportunity equality to provide may help.

- Able to answer frequently asked questions, provide feedback on assignments and students to its performance based on aspect more more study material able to suggest artificial intelligence supported chatbots by to students special support and guidance ensuring.

- Modern technologies AI with together use of: Virtual reality, augmented reality and Gamification like modern technologies AI with integrated use of, your lessons more It will help make it interactive. This means more active participation of students. And motivation to learn increase in terms of an important It will provide an advantage.

By providing a more personalized, student-centered and high-engagement learning environment, AI not only focuses on what is being learned, but also provides tools that respond to user emotions and how students learn (Luckin, Holmes, Griffiths and Forcier, 2016). In this case, when artificial intelligence is used in education, different evaluation perspectives emerge in the relationship between teachers and learners (Kupreko, 2020). Considering all these situations, it can be said that artificial intelligence brings advantages to different situations in the educational environment and affects different roles in the educational process.

Artificial intelligence should be used more effectively for the benefit of students since it affects educational environments in the context of education and training. Measures can be taken in educational environments and educational processes to protect students from the harms of artificial intelligence but to enable them to benefit from its advantages. These measures can be said to be activities such as trying to teach coding education, which forms

33

the basis of artificial intelligence, from an early age.

REFERENCES

Adipat, S., Laksana, K., Busayanon, K., Piatanom, P., Mahamarn, Y., Pakapol, P., & Ausawasowan, A. (2022). The World of Technology: Artificial Intelligence in Education, *Specialusis Ugdymas / Special Education*, 2(43), 2142-2146.

Ahmed, A. S. A. M. S., & Malik, M. H. (2020). Machine Learning for Strategic Decision Making during COVID-19 at Higher Education Institutes, *2020 International Conference on Decision Aid Sciences and Application (DASA)*, 663-668. IEEE. doi:10.1109/DASA51403.2020.9317042

Akgun, S., & Greenhow, C. (2022). Artificial Intelligence in Education: Addressing Ethical Challenges in K-12 Settings, *AI and Ethics*, 2(3), 431–440. doi:10.1007/s43681-021-00096-7

Akpınar, B. (2019). *Görüntü sınıflandırma için derin öğrenme ile bayesçi derin öğrenme yöntemlerinin karşılaştırılması*. Yayınlanmamış yüksek lisans tezi, Afyon Kocatepe Üniversitesi, Afyon.

Arıkan, G. ve Saper, Ü. (2018). Modül 5: Eğitim 4.0. eTwinning Online Eğitimler, http://etwinningonline.eba.gov.tr/lesson/egitim-4-0/.

Arslan, K. (2020). Eğitimde yapay zekâ ve uygulamaları. *Batı Anadolu Eğitim Bilimleri Dergisi*, 11(1), 71-80.

Atasoy Aktaş, A. D. (2021). *Dijital platformlarda kullanılan yapay zeka teknolojilerinin kullanıcı motivasyonları üzerinden incelenmesi: Netflix örneği*. Doktora tezi, İstanbul Üniversitesi, İstanbul.

Audibert, R. B., Lemos, H., Avelar, P., Tavares, A. R., & Lamb, L. C. (2022). On the evolution of A.I., & Machine Learning: Towards Measuring and Understanding Impact, Influence and Leadership at Premier A.I. Conferences. http://arxiv.org/abs/2205.13131.

Cao, Z. (2021). Mobile phone gps and sensor technology in college students' extracurricular exercises, 103-108. doi:10.1007/978-3-030-62746-1_15

Chen, L., Chen, P., & Lin, Z. (2020). Artificial ıntelligence in education: A review. *IEEE Access*, 8, 75264–75278. doi:10.1109/ACCESS.2020.2988510

Coşkun, F. ve Gülleroğlu, H. D. (2021). Yapay zekanın tarih içindeki gelişimi ve eğitimde kullanılması. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, 54(3), 947-966. doi:10.30964/auebfd.916220

34

Craft, J. A. I. (2018). Artificial ıntelligence and the softer side of medicine. *Missouri Medicine*, *115*(5), 406-409.

Daniela, L., Visvizi, A., Gutiérrez-Braojos, C., & Lytras, M. (2018). Sustainable Higher Education and Technology-Enhanced Learning (TEL), *Sustainability*, *10*(11), 3883. doi:10.3390/su10113883

Duggan, S. (2020). *AI in Education: Change at the Speed of Learning*, (S. Knyazeva, Ed.). UNESCO IITE. https://iite.unesco.org/wp-content/uploads/2021/05/Steven_Duggan_AI-in-Education_2020-2.pdf.

Duong, M. T., Rauschecker, A. M., Rudie, J. D., Chen, P.-H., Cook, T. S., Bryan, R. N., & Mohan, S. (2019). Artificial ıntelligence for precision education in radiology, *The BritishJournal of Radiology*, *92*(1103), 20190389. doi:10.1259/bjr.20190389

Freitag, D. (2000). Machine learning for ınformation extraction in ınformal domains. *Machine Learning*, *39*(2), 169-202.

Goodfellow, I., Bengio, Y., & Courville, A. (2018). *Derin öğrenme*. Ankara: Buzdağı Yayınevi.

Göçen, A. ve Aydemir, F. (2020). Artificial intelligence in education and schools. *Research on Education and Media*, *12*(1), 13-21.

Görz, G. ve Nebel, B. (2005). *Yapay zekâ*. İstanbul: İnkılap Kitapevi.

Hao, K. (2019). China has started a grand experiment in aı education. It could reshape how the world learns, https://www.technologyreview.com/2019/08/02/131198/china-squirrel-has-started-a-grand-experiment-in-ai-education-it-could-reshape-how-the/.

Hleg, A. (2019). *A Definition of AI: Main Capabilities and Scientific Disciplines*. https://ec.europa.eu/digital-single-.

Huang, J., Saleh, S., & Liu, Y. (2021). A Review on Artificial Intelligence in Education, *Academic Journal of Interdisciplinary Studies*, *10*(3), 206-217.

İşler, B. ve Kılıç, M. (2021). Eğitimde yapay zekâ kullanımı ve gelişimi. *Yeni Medya Elektronik Dergisi*, *5*(1), 1-11.

Jalota, C., & Agrawal, R. (2019). Analysis of educational data mining using classification. *2019 International Conference on Machine Learning, Big Data, Cloud and Parallel Computing (COMITCon)*, 243-247.

Joshi, S., Rambola, R. K., & Churi, P. (2021). Evaluating artificial intelligence in education for next generation. *Journal of Physics: Conference Series*, *1714*(1), 1-14.

Kara Kılıçarslan, S. (2019). Yapay zekânın hukuki statüsü ve hukuki kişiliği üzerine tartışmalar. *YBHD*, *2*, 363-389.

35

Kayabaş, İ. (2010). *Yapay zekâ sohbet ajanlarının uzaktan eğitimde öğrenci destek sistemi olarak kullanılabilirliği.* Yayınlanmamış yüksek lisans tezi, Anadolu Üniversitesi, Eskişehir.

Kengam, J. (2020). Artificial ıntelligence in education. file:///C:/Users/User/Downloads/UseofArtificialIntelligenceinEducation4.pdf.

Kocaman-Karoğlu, A., Bal-Çetinkaya, K. ve Çimşir, E. (2020). Toplum 5.0 sürecinde Türkiye'de eğitimde dijital dönüşüm. *Üniversite Araştırmaları Dergisi*, *3*(3), 147-158.

Kuo, T. H. (2020). The current situation of AI foreign language education and its influence on college Japanese teaching. In *Cross-Cultural Design. Applications in Health, Learning, Communication and Creativity: 12th International Conference, CCD 2020, Held as Part of the 22nd HCI International Conference, HCII 2020, Copenhagen, Denmark, July 19–24, 2020, Proceedings, Part II 22* (pp. 315-324). Springer International Publishing.

Kuprenko, V. (2020). Artificial intelligence in education: Benefits, challenges and use cases. *https://medium.com/towards-artificial-intelligence/artificial-intelligence-in education benefits-challenges-and-use-cases-db52d8921f7a*.

Kuşku Özdemir, E. ve Güzeloğlu, E. B. (2015). Akıllı telefonlar ve marka değeri algıları: üniversite öğrencileri üzerine bir araştırma. *Journal of International Social Research*, *8*(40), 730-742.

Long, D., & Magerko, B. (2020). What is AI literacy? competencies and design considerations. *Conference on Human Factors in Computing Systems - Proceedings*, 1-16.

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in Education.* London: Pearson Education.

Luo, Q., & Yang, J. (2022). The artificial ıntelligence and neural network in teaching. *Computational Intelligence and Neuroscience,* 1-11.

McCarthy, J. (1998). *What is artificial intelligence?* http://cogprints.org/412/2/whatisai.ps.

Mitchell, M. (2021). Why aı is harder than we think. *Proceedings of the Genetic and Evolutionary Computation Conference*, ACM, New York, USA.

Nabiyev, V. V. (2012). *Yapay zekâ insan-bilgisayar etkileşimi*. Ankara: Seçkin Yayıncılık.

New Scientist. (2021). *Düşünen makineler: Yaklaşan yapay zekâ çağı ve insanlığın geleceği*. İstanbul: Say Yayınları.

36

Nilsson, N. J. (1990). *The mathematical foundations of learning machines*. Morgan Kaufmann Publishers Inc. https://dl.acm.org/doi/abs/10.5555/87765.

Öztemel, E. (2018). Eğitimde yeni yönelimlerin değerlendirilmesi ve eğitim 4.0. *Üniversite Araştırmaları Dergisi*, *1*(1), 25-30.

Park, J., Yun, J., Kwon, O., Moon, I., & Kim, B. (2014). Design of contents authoring tools for smart-learning, 97-104.

Pirim, H. (2006). Yapay zekâ. *Journal of Yasar University*, *1*(1), 81-93.

Rampelt, F., Orr, D., & Knoth, A., 2019, *Bologna digital 2020: White paper on digitalisation in the european higher education area*. https://hochschulforumdigitalisierung.de/en/news/white-paper-bologna-digital-2020-digitalisation-higher-education-europe.

Russell, S., & Norvig, P. (2022). *Artificial intelligence: A Modern Approach* (4nd ed.). New Jersey: Pearson.

Sekeroglu, B., Dimililer, K., & Tuncal, K. (2019). Artificial intelligence in education: application in student performance evaluation. *Dilemas contemporáneos: Educación, Política y Valores*, *7*(1), 1-21.

Shen, L., Chen, I., Grey, A., & Su, A. (2021). Teaching and Learning with Artificial Intelligence. S. Verma and P. Tomar (Ed.), *Impact of AI Technologies on Teaching, Learning and Research in Higher Education*, 73-98. Hershey: IGI Global. doi:10.4018/978-1-7998-4763-2.ch005

Singelmann, L., Swartz, E., Pearson, M., Striker, R., & Vazquez, E. A., 2019, Design and Development of a Machine Learning Tool for an Innovation-Based Learning MOOC. *2019 IEEE Learning With MOOCS (LWMOOCS)*, 105-109. IEEE.

Sürer, A. G. (2020). Eğitimde dijitalleşme çağı. *Kapadokya Eğitim Dergisi*, *1*(1), 28-34.

Tamayo, P. A., Herrero, A., Martín, J., Navarro, C., & Tránchez, J. M. (2019). Design of a chatbot as a distance learning assistant. *Open Praxis*, *12*(1), 145-153.

Tapalova, O., & Zhiyenbayeva, N. (2022). Artificial intelligence in education: aied for personalised learning pathways. *The Electronic Journal of e-Learning*, *20*(5), 639-653.

Taşçı, Y. ve Taşlıbeyaz, E. (2021). Yükseköğretim kurumlarında dijital dönüşüm çalışmalarının incelenmesi. *Journal of Higher Education and Science*, *11*(1), 172-183.

Tkachov, A., & Makhnovsky, S. (2021). Models of blended learning and approaches to their selection in the educational process of higher education. *Bulletin of Luhansk Taras Shevchenko National University*, *2*(8), 321-332.

37

Toosi, A., Bottino, A. G., Saboury, B., Siegel, E., & Rahmim, A. (2021). A brief history of AI: How to prevent another winter (A Critical Review). *PET Clinics*, *16*(4), 449-469.

Uzun, Y., Hatipoğlu, M., Bütüner, R. ve Calp, M. H. (2021). Yapay zeka insan zekasını geçebilecek mi? *Uluslararası Mühendislik, Doğa ve Sosyal Bilimler Sempozyumu ISENS-21 Ana Teması "Enerji ve Toplum"* içinde. Batman Üniversitesi.

Ünal, A. ve Kılınç, İ. (2020). Yapay zekâ işletme yönetimi ilişkisi üzerine bir değerlendirme. *Yönetim Bilişim Sistemleri Dergisi*, *6*(1), 51-78.

Villegas-Ch, W., Molina-Enriquez, J., Chicaiza-Tamayo, C., Ortiz-Garcés, I., & Luján-Mora, S. (2019). Application of a Big Data Framework for Data Monitoring on a Smart Campus. *Sustainability*, 11, 1-15.

38