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Past and Present of Educational Technologies in Turkey

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Summary

In this study, the studies carried out in the field of educational technologies in our country and the services provided will be discussed. It is expected that the study will contribute to the literature in this sense. Technology gradually provides convenience to mankind in many fields from the past to the present. From the most primitive periods to the present, we try alternative methods to facilitate our lives in all areas of our lives, and we try to apply these methods in different areas of our lives. The technical methods we have used, especially in the twentieth and twenty-first centuries, have gained momentum and offer us practical and temporal fast solutions in many areas. In today's world, especially the enrichment and improvement of daily materials used in education, facilitates the work of both students and teachers, provides operability, convenience and stability in education. At the point we have reached today, especially in the last twenty years, as a result of the support and opportunities provided by the Internet and mass media, there has been a great acceleration in the educational community in terms of efficiency and permanence.

Keywords: Education, Technology, Educational Technology

Türkiye'de Eğitim Teknolojilerinin Dünü ve Bugünü

Özet

Bu çalışmada ülkemizde eğitim teknolojileri alanında yapılan çalışmalar ve sunulan hizmetler konusuna değinilecektir. Çalışmanın bu anlamda alanyazına katkı sunacağı öngörülmektedir. Teknoloji, tedrici olarak geçmişten günümüze birçok sahada insanoğluna kolaylık sağlamaktadır. En ilkel dönemlerden günümüze değin hayatımızın her alanında yaşamımızı kolaylaştırmak için alternatif yöntemler dener, bu yöntemleri hayatımızın farklı alanlarında uygulamaya çalışırız. Kullanmış olduğumuz teknik yöntemler, özellikle yirminci ve yirmi birince asırda ivme kazanarak birçok alanda bizlere pratik ve zamansal açıdan hızlı çözümler sunmaktadır. Günümüz dünyasında, bilhassa eğitimde kullanılan günlük materyallerin zenginleştirilmesi ve iyileştirilmesi, gerek öğrencilerin gerek öğretmenlerin işini kolaylaştırmakta, eğitimde işlerlik, kolaylık ve istikrar sağlamaktadır. Bugün gelinen noktada, özellikle son yirmi yılda internet ve kitle iletişim araçlarının sağlamış olduğu destek ve imkanlar neticesinde eğitim camiasında verim ve kalıcılık yönünden büyük bir ivme yaşanmıştır.

Anahtar Kelimeler: Eğitim, Teknoloji, Eğitim Tekolojisi

Introduction

In the 21st century, with the continuous development and renewal of digital technologies, becoming more visible and widespread in daily life, a common culture formed by the whole world through technology has emerged. This culture is digital culture, which we can call a lifestyle and habits formed by the age. As a matter of fact, today, a digitalized world is seen with the effect of the latest technological advances.

Especially with the emergence of the internet, digitalization has started in every field and digital culture has become an inseparable part of the information society. Digital culture is defined as a new way of life and approach that develops as a result of accelerated information production and communication with computers, internet and smart phones.[1]

[1] Mehmet Akif İnci- Ümmühan Akpınar- Adalet Kandır, Dijital Kültür ve Eğitim, *GEFAD / GUJGE,* c. 37 sayı 2, 2017, s. 495.

The life of human beings is affected from every aspect by the developments in science and technology in today's modern world. In the current time, education should be more important than ever so that people can keep up with these developments on earth and contribute to science and technology. Because, it is possible to raise the individual in a way that is suitable for today's conditions and to adapt to new situations that will arise in the future, by giving them an appropriate education.

Today, there have been differences in the roles of the teacher. The teaching approach, which is based on learning for the learner and the teaching process for the teaching individual, has changed. In the traditional teaching approach, the teacher is the only person who verbally conveys the information to the student. In today's contemporary teaching approach, it is adopted that students make an effort to learn, take an active role in teaching, and reach predetermined levels of behavioral goals in terms of teaching products.

In the contemporary teaching approach, teacher-centered teaching or student-centered teaching, which is formed in opposition to it, has left its place to a teaching approach that we can call standard student quality centered, which focuses on the achievement of the qualifications expected to be formed in the student at the end of the teaching activity to the determined standards.

In this approach, it is aimed for each student to reach predetermined standards of learning products such as verbal knowledge, cognitive skills, cognitive strategies, motor skills or attitudes. This situation has created a change in the role of the teacher in the traditional teaching approach, who conveys information and answers every question asked by the student.

In the new approach, the teacher gave the role of guiding students in solving their learning problems and obtaining knowledge. Such a change has led to changes in the meanings and scopes of concepts such as “teaching”, “supervision in teaching” and “educational technology”.

For modern people, technology is among the indispensables of life. Science and technology are the most prominent features of contemporary culture. In such an environment of change and transformation, it is obvious that there has been a need to give education a scientific and technological qualification.

The student needs some materials in the teaching process. Among these materials, there are tools such as computers, the Internet, mechanisms such as slide projectors, movie projectors, teaching

television, satellite broadcasts, individual teaching materials such as programmed teaching materials, modular learning materials, textbooks, resources and supplementary textbooks.

All these tools are the materials of the field of educational technology that perform the teaching function for students.[2] The main purpose of our study is to clarify issues such as what educational technology is, its contributions to educational practices and how it is defined.

1. What is Educational Technology?

"What is educational technology?" The answers to the question have varied over time. Studies on educational technology XIX. Although the first studies in this area did not go back to the century, XX. It emerged at the beginning of the 20th century as a result of the sectoral pressure of industrial technology, apart from educational science.

This field, which is based on industrial technology, first showed itself in the field of visual technology. XX. With the new establishment of school museums at the beginning of the century, developments have been made in visual industry technology with the start of shooting silent movies. With the influence of these developments, visual education offices were established in schools.

In the light of the information in the sources, what is understood from the concept of educational technology is mostly related to the concepts of tools, equipment and messages. However, this perception has changed over time, and it has been argued that educational technology is effective in the field of learning and teaching, including hardware and software, and covers everything related to these fields.

Constructivism, which has been attributed to cognitive psychology and interpretive philosophy in recent times, has caused changes in the functions and methods of educational technology. The way

[2] Demet Alpar- Gülşah Batdal- Yusuf Avcı, Öğrenci Merkezli Eğitimde Eğitim Teknolojileri Uygulamaları, *Hasan Ali Yücel Eğitim Fakültesi Dergisi*, Sayı 7, 2007 (1), s. 20-22.

educational technology is perceived and the reflections of these perceptions have led to different definitions of educational technology.[3]

In addition, there have been discussions and differences of opinion about the names to be given to this field. As a matter of fact, it has been argued by some intellectuals that the concept of "process" should be used rather than "product". In addition to this, the term "audio-visual" tools is also used.

The definitions made by a scientist named Hoban on this field were recorded as "educational technology, technology in education". In AECT's glossary of terms, this nomenclature has been adopted as educational technology, and instructional technologies have been accepted as a part of educational technology.[4]

In addition, many developments in technology-related fields today change and affect all aspects of people's concrete life from start to finish. Technology has a very strong effect on this change. Education has also been affected by this changing power of technology. As a result of this interaction, the concept of educational technology has emerged.

The Association for Educational Communications and Technology (AECT), the international organization of the science of educational technology, defines educational technology as "the ethical practice and theoretical research work on the creation, use and management of appropriate technological processes and resources for facilitating learning and increasing performance".

Educational technology has an important place in the continuation of distance education-teaching activities, especially during the Covid-19 epidemic, which has affected the whole world in recent years. In summary, educational technology stands out as a solution area in order to make teaching more effective.[5]

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[3] Nurettin Şimşek, Eğitim Teknolojisindeki Yönelimlerin Uluslararası Boyutları, *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, c. 34, sayı 1, Ankara 2001, s. 78-79.

[4] Akif Ergin, Eğitim Teknolojisinin Kısa Tarihçesi, *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi,* c. 24, sayı 2, Ankara 1991, s. 371-372.

[5] İsmail Hakkı Ergüven- Akif Pamuk, Tarih Öğretmenlerinin Eğitim Teknolojisi ile İlgili Özyeterliklerinin ve Tutumlarının İncelenmesi, *Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi*, sayı 56, Temmuz 2022, s. 257.

Technology, which is considered as a technical science with its general nature, is a method of putting theoretical knowledge into practice. This method is very effective in processes such as scientific rules and designing human-machine systems. In other words, educational technology is a set of systems consisting of employees, tools, processes and methods for the active and positive implementation of educational theories. Educational technology is a systematic approach to make the necessary evaluation in education and training processes.[6]

2. Contributing Scholar in Educational Technology: Michael Graham Moore

Originally educated in England, Moore received his PhD from the University of Wisconsin-Madison in 1973. Moore began his academic career in Canada, but within a few years returned to England to work at the Open University. He returned to the United States in 1985 by accepting an academic staff at Pennsylvania State University.

Moore also spent seven years as an adult educator in East Africa. Historically, distance education practices have often been influenced by the usability of new technology rather than their educational inspiration. Despite certain concerns, Moore attributes an important role to new technologies in distance education and is even optimistic about the future.

Regarding e-learning, Moore: Distance education has the potential to offer more education opportunities to more people than ever before, doing so at the lowest average cost and, most importantly, of a higher quality than most people can achieve in other ways.

Thanks to the Journal of Distance Education and the Distance Education Online Symposium it initiated and developed, educational technology experts and academicians working in distance education have had important opportunities for scientific communication. Moore's theories on distance education, his contributions to scholarship and practice, and his efforts to create spaces

[6] Cevat Alkan, Eğitim Teknolojisi, *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, c. 7, sayı 1, Ankara 1974, s. 340.

for distance education researchers to interact with each other have affected many educational technologies differently.[7]

3. Competencies Provided by Educational Technology

When the opportunities and opportunities provided by educational technology in the age of developing technology are evaluated in terms of the development, permanence and contribution of education to individuals, it can be said that the following effects and competencies occur: Equality of opportunity in education, education of the masses, which students have provided in order to benefit from all the opportunities of the education they have provided, regardless of their status and the processes they are in.

Education for individuals, enrichment of life in education and training, qualified and high quality in education, being economical in terms of saving time and similar aspects, eliminating the limit of time and place without reducing education to a certain time and place, making use of available resources efficiently It provides opportunities for us in areas such as creativity, obtaining information from first-hand sources, benefiting from repeatable and reproducible systems, acquiring information quickly and accelerating the learning process. s.

In addition to these advantages brought by educational technology, the problems encountered should be overcome. In the current time period, the society is not fully ready for the rapid development of educational technology and the society is faced with the problem of adapting to this process.[8]

After the telephone, radio and television, which started in the 19th century and developed in the 20th century, computers have also made communication between people, countries and intercontinental fast. These intense communication opportunities provided by technological tools

[7] Michael K. Barbour- Thomas C. Reeves, Michael Graham Moore: Eğitim Teknolojisi Alanına Katkıda Bulunan Kişi, çev. Mehmet Barış Horzum, *Sakarya University Journal of Education*, 3/1 (Nisan /April 2013), s. 114-116.

[8] *a.g.m.*, Eğitim Teknolojisi, s. 343-344.

cause even a local event that takes place in any corner of the world to become an issue for the whole world.

Today, with technology, information is spreading very rapidly and there is a great variety of information. In this diversity of information, the problem of reaching correct information and reaching useful information arises. Newspaper, magazine, internet, computer, communication satellite, video, frequency distribution, book, telephoto, slide, telephone, etc., which enable communication through text, sound or image. All mass media are called media. These materials also provide convenience to students and teachers in educational processes.

Computers, internet, mobile phones, game consoles, ipod, in other words all digital technologies that have become a part of daily life are gathered under the title of new media. Today, especially the developments in technology have made people of all ages use electronic devices. Many segments of the society, including students, can send messages, send e-mails, learn instantly what they are curious about, book tickets, shop, read electronic books or write texts via smart phones. Therefore, it is possible to say that we live in an electronic age.[9]

4. How should technology be used in education and training activities?

The rapid changes and developments that took place in the 19th and 20th centuries also significantly affected communication and information technologies. Technological developments have also changed the structure of the educational process and brought a different perspective to the understanding of education.

Contemporary education approaches, where transferring and memorizing knowledge with traditional teaching methods is no longer preferred. The role of the teacher and the expectations from the student have also changed.

Knowing technology and using it effectively is one of the ways to meet the expectations that can be expressed as individuals who think, produce, create, share, are self-confident, prone to

[9] Ayşe Elitok Kesici- Ayşegül Kızılkaya, Medya Okuryazarlığına İlişkin Öğretmen Görüşleri, *Eğitim Teknolojisi Kuram ve Uygulama,* c. 6, sayı 2, 2016, s.176-177.

interaction, have the knowledge and skills to use information and communication technologies, are sensitive to the world and developments, and are equipped.

In this respect, universities and academicians who direct science have important duties. As educational research emphasizes, instructors who develop a positive attitude towards technology are more successful in integrating technology into education than instructors who develop a negative attitude.

Among the information technologies commonly used in universities, printed materials, radio, newspaper, tv, cd, video, film, overhead projector, acetate, slide, computer, multimedia, websites and distance education can be mentioned. In their study on the use of information technologies in education, Tor and Erden determined that teachers mostly use educational learning tools such as overhead projector, blackboard, computer, television, slide machine and VCD in the classroom.

It is important for universities to set an example in using and developing technology in their educational activities, for the adaptation of societies to new technologies and for the creation of an information age society. In contemporary societies, raising individuals who can use the tools in information technologies skillfully, who have knowledge in collecting, interpreting and using these data, and who can work by using appropriate information technology resources have been important goals.

Teachers who will put technologies into practice should not only be introduced to technology, but also gain the ability to organize learning activities using technology and new teaching techniques.[10]

5. The Place and Importance of Smart Boards in Educational Technologies

According to some, it is thought that only the use of personal computers during lectures undermines education, since education with a computer alone makes education difficult for various reasons.

[10] Elif Ünal Bozcan, Eğitim Öğretim Faaliyetlerinde Teknoloji Kullanımı, *Eğitim Teknolojileri Araştırmaları Dergisi*, c. 1, sayı 4, 2010, s. 2.

For example; In a classroom environment where only a computer is used, while the teacher is explaining a subject, since the students will not see the teacher's computer, it becomes very difficult to explain the subject and ensure that the subject is fully visualized in the mind of the student. Although computer labs are shown as an alternative solution to this problem, this does not provide a complete solution to this problem, as it will be difficult to concentrate the attention of the students on the lesson in such an environment where each student has a computer in front of them. Your student

In an environment where the student's attention cannot be fully drawn to the lesson, it does not seem practical to enable the student to perform meaningful learning by creating a bridge between his existing knowledge and new learning.

One of the situations where smart boards make an important contribution is that they allow the teacher to save what is written on the board during the lesson and use it later when necessary or share it with the students. This not only provides economic benefits by eliminating the need for photocopying the lecture notes of the topics covered, but also saves time by allowing similar content to be reused.

The fact that the teacher can record any page he explains on this board with the add-ons in the lesson and share it with his students later, especially the student who has difficulty in understanding the subject by taking wrong notes in the lesson, has the opportunity to repeat the subject from the right source as if he is listening in the lesson, as well as the comfort provided by this opportunity. By establishing a good connection between the information given by the teacher, it allows him to better understand the subject.

Considering the studies in the literature, the possible benefits of smart boards can be summarized under the following headings: Compatibility and versatility, competence and effectiveness, multimedia presentation, material planning and development, shaping informatics skills, interaction and participation in the lesson, motivation.[11]

[11] Tufan Adıgüzel- Neşe Gürbulak- Hakan Sarıçayır, Akıllı Tahtalar ve Öğretim Uygulamaları, *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, c. 8, sayı 15, 2011, s. 459-461.

6. Attitudes Towards Educational Technologies Used in Schools

Developments in the field of technology accelerate the globalization process and change and improve education systems as well as affecting societies in every field. Education in globalization processes; It represents a process that enables continuous learning, acquiring knowledge, being knowledgeable people, producing knowledge and living with knowledge. In this respect, technology and information have an important place in the globalization process and educators are expected to be individuals who use information elements and communication technologies and transform them into useful ones.

In this process, education administrators are expected to use technology and technological opportunities effectively in the process of influencing their teachers in order to achieve the goals of education. Ultimately, technology leadership; It includes the competencies and skills expected from education administrators in order to assimilate technology and technological opportunities to all stakeholders of education and to strengthen educational institutions in the competitive field that will be formed by the development of technological elements.

In educational practices, especially after Covid-19, technological opportunities and technological infrastructure competencies in schools have become questionable again. Along with teachers and students, educational administrators were asked to take steps to renew the technological opportunities of schools in the context of globalization. In this process, in order to realize the technological breakthrough in education, education administrators should see information and communication technologies as an important part of the education system.

It can be said that within the Turkish national education system, investment in educational technologies has begun not only during the Covid-19 epidemic process, but also during the previous education practices. Especially in this process, qualified education administrators are expected to question, develop and renew the technological infrastructure of their schools.

Because scientists such as Richardson, Bathon, Flora and Lewis state that the impact of technology leadership in education is increasing in the global context. For this reason, education administrators are expected to take responsibility for changing and improving schools by using information technologies.

As a matter of fact, raising citizens who have a modern understanding in terms of technology, have global skills and knowledge, have applicable skills, and have an open future, on a basis that will contribute to the economy that has developed on the basis of knowledge of the last century; It requires school leaders who can lead the changes to be made in schools by integrating technological innovations in a holistic way. If we assume that our globalizing world is in the age of digital technology, technology leadership in education becomes even more important.

Technological leadership symbolizes organizational policies, actions and decisions that facilitate the effective use of information technologies in all educational institutions. In this age where we have an advanced information technology, technology materials; It has a significant impact on the better education of schools, teachers and students. In this process, the opinions of education administrators about the technological opportunities of their schools and the educational practices that these technological opportunities can provide are important.[12]

7. Problems that Teachers Encounter in Educational Technologies

The impact of the developing technology manifests itself in the education community as well as in all areas. Many countries attach importance to the use of technology in the classroom. For this reason, the number of computers in schools is increased, new software is prepared, and studies are carried out to train teachers about technology.

The developments that have occurred with the inclusion of concepts such as distance education and e-learning in the learning-teaching processes have made technology an integral part of education systems.

In addition, the Ministry of National Education considers the active use of technology in the classroom environment as a field of competence for teachers. The use of technology in learning-teaching processes is discussed in the world and in our country, and studies are carried out on the

[12] İsmail Erol, Semih Çayak, Eğitim Yöneticilerinin Küreselleşme Bağlamında Okullardaki Eğitim Teknolojileri ve Uygulamaları Hakkındaki Görüşleri, *Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi*, 19 (4), 2021, s. 178-179.

possibilities that technology can offer with different projects. Unlike in Turkey, technology has always been tried to be delivered to the classrooms.

FATIH Project, which has been recorded as the biggest initiative in education in recent years, has created goals such as distribution of tablet computers to teachers and students, installation of interactive whiteboards in classrooms, strengthening the internet infrastructure of schools and transferring educational content to electronic environments.

Today, technology is expected to meet expectations, facilitate activities and satisfy the user. With the FATIH Project, the information technology tools placed in the classroom environment increased the students' interest in the lesson and allowed them to listen to the lesson more carefully.

For example, interactive whiteboards make the lessons more visual and lively by providing sound clips that enable the use of visual elements, video and animation demonstrations, highlighting opportunities such as color, image, screening and enlargement-reduction. In addition to all these developments, thanks to their dynamic structures, they enable students to be more active and active in the lessons and to perceive them more easily.

Studies conducted in recent years prove that teachers and students no longer see the use of smartphones in the classroom as inconvenient, but rather as a technological aid that supports educational studies.

For this reason, teachers who try to keep up with the great advances in technology and benefit from the rapidly developing updates may encounter various problems while trying to make this technology suitable for pedagogical use in the classroom environment. At this point, how technology is used in the learning environment, what problems are encountered while using it, and what steps are expected to be taken find the field of research and examination.

In order to increase the quality of education and to realize an efficient learning, it should be explained what problems teachers encounter while using technology in schools and what kind of methods they use to cope with these problems.

In order to make these determinations, a study with those who use technology effectively in their classrooms will be beneficial in obtaining accurate information about the use of technology in the classroom environment. As a result, the needs can be identified and appropriate methods can be developed for the effective use of technology in the classroom in the future.

In recent years, the Ministry of National Education has undertaken a pioneering task in ensuring equality of opportunity without discrimination in education with success factors. In this sense, he started and put into practice the FATIH Project, which he built on 5 basic components, throughout the country.

The aims of the project are to provide hardware and software infrastructure, to provide and manage educational e-content, to use active information technologies in curricula, to provide in-service training of teachers, to use conscious, safe, manageable and measurable information technologies.

In the world of education, computers are used especially for accessing web pages, writing and playing; it is not used for more creative and complex purposes. In addition, a study conducted in our country revealed that one-fourth of the teachers use computer labs and information technologies in their lessons. As the number of computers in schools increases, it is of great importance to learn about the levels of computer use and the factors that prevent the use of computers for educational purposes.

Most of the teachers do not see blocking of access to some e-contents as an obstacle while using technology in the classroom. However, besides this, the participants find the e-content they are trying to use on the internet insufficient and they can use technology less in their lessons due to technical problems in schools, intensive curriculum and lack of time.

Teachers can be offered more in-service courses on technology use. If e-content preparation studies are predominant in these trainings, teachers can reveal more free and confident results in terms of preparing content suitable for the character of their courses. When budget opportunities are evaluated, MOOC-based distance in-service training activities may also be suitable for courses when SCORM or the professional development platform offered is enriched and expanded for teachers. EBA can also be used at the point of service to education.

Time constraints related to curriculum density can be reduced and time savings can be achieved by suggesting more activities in the curriculum to use technology in lessons. It will be a good

orientation to get information by contacting the schools about the reasons for the technical problems to be encountered and to solve the related problems, if any.[13]

Conclusıon and Evaluatıon

Since the term educational technology is a new concept, it should produce solutions to the problems of teachers and students at all levels of education and should be used appropriately and judiciously. Because educational technology should be able to give the desired result at every level of education and should be used for this purpose.

Necessary support should be given to schools and other educational institutions in accessing this technology, and advice and requests should not be ignored. In order to reach the desired education level, decisions should be made in the direction of these wishes and demands. In order for the decisions taken to be binding, official inspections should be carried out, and financial funds should be created by the state for regions deprived of educational technology.

Students, teachers and parents should be informed through seminars and conferences organized by the state so that students can reach certain competence and status in their professional and school life. In order for the programs and materials related to educational technologies applied in schools to develop positively, they should be supervised by the units to be established and should not be abused.

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[13] Nihan Uçar Sarımanoğlu, Öğretmenlerin Sınıflarda Eğitim Teknolojisi Kullanımında Karşılaştıkları Güçlükler, *Milli Eğitim Bakanlığı Yenilik ve Eğitim Teknolojileri Genel Müdürlüğü*, 2019, s. 9-33.

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