21st Century Skills and Teacher Training

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Introduction

The human profile in societies has changed with the dizzying development of technology and access to knowledge and information becoming an important force. The qualities and skills that people should have have inevitably changed, and how education will be affected by this change has also been a subject of great investigation. Changes in the quality and content of education are among the most discussed topics in our country as well as all over the world. The education system consists of the students, teachers, educational programs, administrators, physical and financial resources. In this respect, it can be said that the teacher is the most fundamental element of the education system and the quality of education is directly proportional to the quality of teachers (Şişman, 2005). Considering the fact that the human profile needed today should have characteristics such as being able to think critically, be creative, open to communication and cooperation, it can be said that teachers should have these characteristics in order to raise individuals with these characteristics.

It is an accepted fact that the most important factor determining the quality of educational services in a country is the quality of the teacher (Mahiroğlu, 2007). In a study conducted by Organization for Economic Cooperation and Development (OECD), it is stated that the quality of education in a country is proportional to the quality of teachers, that students' learning process is affected by many factors, and that teacher and teaching-related factors have important effects on student learning. In particular, "teacher quality" is shown as the most important factor affecting the student success (OECD, 2018).

The necessity of teachers to have characteristics that can affect the quality of education makes it necessary to improve the quality of the programs applied in teacher education. However, studies show that there are still problems in the current teacher training programs in our country. In this respect, elimination and improvement of the deficiencies in teacher training programs is important in terms of contributing to the development of teacher qualifications (Erden, 1998).

Teacher training is divided into two periods as pre-service and in-service trainings (Şişman & Acat, 2003). In pre-service education, it is aimed that teacher candidates gain the knowledge, skills and attitudes required by their profession. Pre-service training has 3 aspects. First aspect aims to improve the general cultural skills. The second aspects is the cultural field that gives knowledge and skills related to the content of the field of

education while the third is the professional aspect in which the theoretical and practical sides of educational sciences and the behaviors required by the teaching profession are achieved (Küçükahmet, 1993). In this process, thanks to teaching practices, prospective teachers have the opportunity to examine the information they have obtained in theoretical studies and to turn the knowledge into action. This opportunity is a real chance for prospective teachers to experience the learning process in a real environment (Hamaidi et al., 2014). Regardless of the quality of pre-service training, teachers must be supported by in-service training in order to continue their development after starting their profession.

The changes and developments in the society also direct the education programs, and the education programs are directly affected by this process (Belet- Boyacı & Güner- Özer, 2019). For this reason, the answer to what kind of teacher should be in education varies according to the societies and time, causing new searches in teacher training systems (Celep, 2004). However, in order to talk about the quality of education in a society, the process should be started primarily with teacher education and teacher education should be supported continuously. Studies reveal that teacher training systems should also be reviewed (Yılmaz et al., 2019). Dorczak (2018) states that current approaches in pre-service teacher training focus solely on the teacher's teaching competencies in his / her field and aim to train teachers in specific areas instead of teachers that support the comprehensive development of students. Mizerek (2018) states that current teacher training systems, especially pre-service teacher training systems, should be reviewed. It is inevitable to do this especially in these days when we are going through extraordinary periods.

Different practices have been made in the field of teacher training in the world and in our country and the new developments have been followed in order to train more equipped and more qualified teachers, and as a result, many changes have been made (Altınok & Eskimen, 2011). In recent years, it is seen that many countries associate the inadequacy of their education systems with teacher training and carry out continuous reforms on this issue, and as a result, there are many different practices in teacher training in the world (Topkaya et al., 2012; Aksoy, 2013). Practices in teacher training programs, especially in countries that are successful in education, are followed by other countries. Teacher education policies in Turkey are also affected by these studies.

As a result of the education policies that have been followed in our country since the 1960s, many changes have been experienced in our teacher training system (Okçabol, 2005). In consequence of the teacher training system transferred from the Ministry of National Education (MEB) to universities with the law about the Council of Higher Education (YÖK) enacted in 1982, the education faculties that did not have sufficient experience in training teachers got into a very difficult situation. As a result, an effective

coordination between Higher Education Institution and the Ministry of National Education in teacher education could not be achieved for a long time (Ayas, 2009). The first formal studies aiming to determine the teacher competencies in Turkey began in 1998 and teacher training standards was set in cooperation with YÖK and the World Bank. Teacher competencies within the scope of "YÖK / World Bank National Education Development Project Initial Teacher Training" was determined as "competencies related to subject area and field education", "competencies related to teaching-learning process", "monitoring, evaluating and recording students' learning" and "complementary professional competencies" (MEB, 2017). As a result of this study, the names of the departments and programs, the names of the courses, their duration and contents were changed, and a balance was tried to be established between theory and practice. Thus, in this process called faculty-school cooperation, it is aimed to strengthen the cooperation between the university (faculty) and the ministry (school) (Şişman & Acat, 2003; Tok, 2011).

With this cooperation model, it is aimed that prospective teachers will be able to apply in educational environments the theoretical infrastructure acquired in the faculty and required by the profession, and adopt a positive attitude regarding the teaching profession, so that they are able to carry out the theoretical and practical education together effectively (Yapıcı & Yapıcı, 2004). Thus, teacher candidates will have the opportunity to reach a more successful pre-service education. However, today there are still deficiencies and glitches in both the theoretical and practical part of pre-service training (Taşcı, 2016). In brief, improvements need to be made in many areas, from the process of selecting teacher candidates to the training process. In recent years, countries that stand out with their success have developed mechanisms that will enable teachers to be innovative and creative in their education policies, as well as giving more importance to the selection of teacher candidates and teacher training (Durman, 2017). Education is a set of systems; the quality and success of the teaching system depends on the existence of a successful pre-service education system. In the report prepared by OECD (2005); it is stated that teacher quality is very important in student achievement, therefore, more attention should be paid to pre-service teacher education as a basic component in increasing teacher qualifications and continuous development of teachers within the profession.

There are common elements in teacher professional development policies of successful countries in education. These; the quality of pre-service teacher training is pre-service or as part of the start-up period, long-term teaching practice activities, a structure that focuses on the continuous improvement of teachers and well-established teacher evaluation mechanisms in school practices (OECD, 2018). The way to improve educational outcomes in a country is through improving teacher qualifications (MEB, 2017). It is obvious that teacher quality can be achieved by increasing the quality of

pre-service and in-service teacher education. For this reason, it should be ensured that teachers are qualified to meet the educational needs of students through both pre-service training and in-service training. In order to increase the quality of the education system, it is very important to develop existing teachers, as well as attract successful students to the teaching profession (OECD, 2015).

Since the beginning of the century, serious changes have been taking place in education. Turkish society has also been affected by the economic, technological and cultural transformations that have occurred at the international level since the last quarter of the twentieth century. It is possible to see the effects of this change on social, cultural and economic structures as well as schools, students, teachers and administrators in the education system (MEB, 2011). Especially in recent years, technological developments and changes reveal the necessity of education systems that can improve themselves in this direction (Abualrob, 2019). The ultimate purpose of education systems is to be able to raise free individuals who are beneficial to society, who take care of social values, who have acquired effective communication skills, who can adapt to change, who have gained the skills to access and benefit from learning resources effectively, who can use information communication technologies efficiently, who are at peace with themselves and society, who take initiative, research, question and have critical thinking skills. The most important task in the construction of a society consisting of individuals with these qualities falls to the teachers (MEB, 2017). Nowadays, students' unlimited and free access to information have changed the roles of teachers in the process. In this regard, educators need to redesign their teaching processes, create an innovative learning experience for students and use technology actively. In addition, teachers are expected to help students develop 21st century skills such as problem solving, critical thinking, creativity, teamwork, metacognition, effective communication and social skills (Mitsou, 2019).

Changes in information and communication technologies as a result of globalization and internationalization concepts also change learning styles and skills. Common points of the researches conducted on these skills, which are generally referred to as 21st century skills; cooperation, communication, digital literacy, citizenship, problem solving, critical thinking, creativity, productivity. Problem solving and critical thinking skills have long been on the agenda of education systems. With the addition of creativity and digital literacy to this process, the knowledge and skills required in education have become quite different from the 19th and 20th century education systems. Especially developments in information and technology have made education more global and international (Suto & Eccles, 2014). One of the primary roles of education is to prepare students to cope with future challenges. Therefore, it can be thought that education has become the key to economic survival in the 21st century (Trilling & Fadel, 2009). Today, students need

more competencies such as high-level thinking skills, multi-literacy, technological literacy (Snape & Fox- Turnbull, 2011).

It is inevitable to make changes in teacher training as a result of the changes happened in the traditionally known duties and characteristics of teachers. The research conducted by Abualrob (2019) reveals that many of the teachers still use traditional methods. In the same study, it is stated that very few teachers use critical thinking, effective communication, cooperation, negotiation and problem solving skills. One of the reasons teachers cannot do that is their lack of skills of that kind and their inability to keep up with rapid technological progress. In this respect, it is important to educate teachers who adopt the 21st century skills and take an interest in using them (Yavuz et al., 2015).
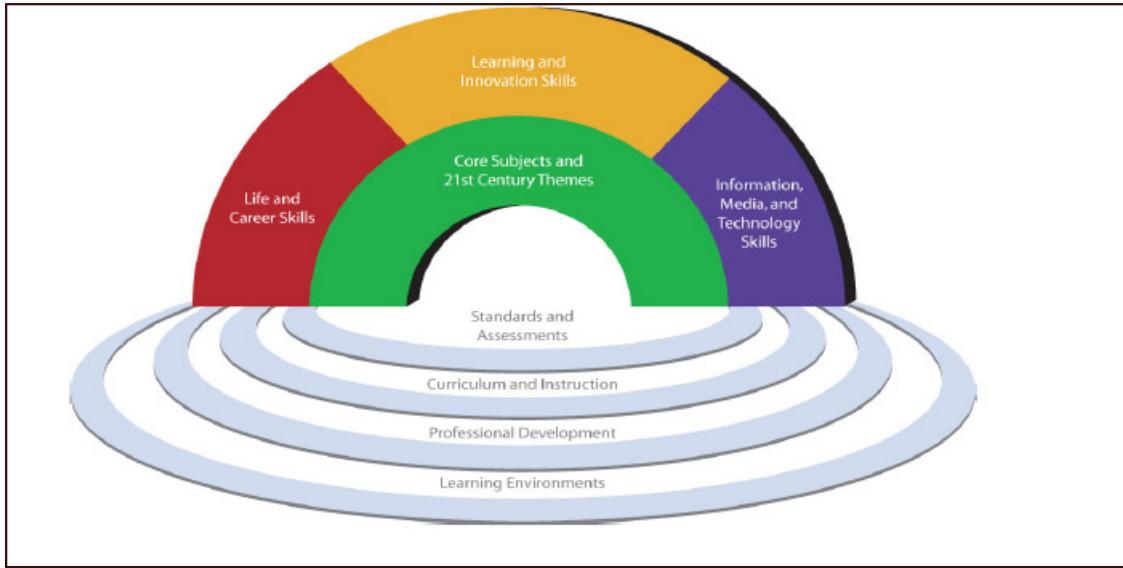
21st Century Skills

Although there are many studies on the determination of 21st century skills, there is no single widely accepted definition. Considering the differences in the structures of societies, educators, politicians, employers and higher education institutions, it can be said that this is an expected situation (Suto & Eccles, 2014). Studies have been conducted by various institutions and organizations regarding the modeling of these skills, and frameworks have been put forward. 21st century skills have been defined by many institutions such as P21 (Partnership for 21st Century Learning), Microsoft, EnGauge (The Metiri Group and The Learning Point Associates), ATC21S (Assesment and Teaching of 21st Century Skills).

According to Assessment and Teaching of 21st Century Skills (ATC21S), 21st century skills are (Binkley et al., 2010):

- Ways of thinking (creativity and innovation, critical thinking, problem solving, decision making, learnig to learn, metacognition)

- Ways of working (communication, collaboration)

- Tools for working (information literacy, information and communication technology literacy)

- Living in the World (citizenship, life and career, personal and social responsibility)

- According to EnGauge, 21st century skills are (NCREL, 2003):

- Digital- Age Literacy (basic, scientific, economic and tehnolgical literacies, visual and information literacies, multicultural literacy and global awareness)

- Intentive Thinking (aadaptability, managing complexity and self direction, curiosity, creativity and risk taking, higher- order thinking and sound reasoning)

- Effective communication (teaming, collaboration and interpersonal skills, personal, social and civic responsibility, interactive communication)

- High productivity (prioritizing, planning and managing for results, effective use of real- World tools, sbility to produce relevant, high- quality products)

- According to P21, 21st century skills are (AACTE, 2010):

- Core subjects (native language/ reading, World languages, arts, geography, history, mathematics, science, government/ civics)

- 21st Century Themes (Global Awareness, financial, economic, business and entreproneurial literacy, civic literacy, health literacy)

- Learning& Innovation skills (critical thinking & problem solving, creativity & innovation, communication & collaboration)

- Information, media & technology skills (information literacymedia literacy, ICT literacy)

- Life & career skills (flexibility & adaptability, initiative & self- direction, social & cross- cultural skills, productivity & accountability, leadership & responsibility)

- According to Microsoft, 21st century skills are (Microsfot, 2017):

- Thinking and learning to learn

- Cultural competence, interaction and self- expression

- Self- care and managing everyday life

- Multiliteracy

- Information and communication technology (ICT) competence

- Working life skills and entrepreneurship

- Participating, influencing and building a sustainable future

When the studies on 21st century skills are compared, it is seen that the skills are grouped under different titles: In the framework developed by Assessment and Teaching of 21st Century Skills (ATC21S), 21st century skills are gathered under 4 headings; in the framework developed by Microsoft, 21st century skills are gathered under 7 headings ; in the framework program prepared by the US National Research Council, 21st Century skills are collected under 3 headings; in the framework, which is one of the most important of these studies prepared by The US Partnership for 21st Century Learning

Şekil 1. 21st Century Student Outcomes and Support Systems (P21)

In our country, MEB (2011) conducted the study of "21st Century's Student Profile" so as to examine the student profile in the 21st century. In this study prepared by MEB 21st century skills are discussed in 4 themes as ways of thinking, ways of working, working tools and world citizenship. Ways of thinking consist of creativity, innovative thinking, receptiveness, problem solving, decision making and using learning strategies; and the ways of working include in communication skills and teamwork while working tools consist of information literacy and communication literacy and finally world citizenship is made up of the awareness of local and universal citizenship, awareness and skills related to life and career, cultural awareness and competences; so that it can be created a personal and social responsibility awareness.

One of the main roles of education is to prepare individuals to cope with the future challenges (Trilling & Fadel, 2009). One of the most important issues of today's education is how 21st century skills can be acquired and developed through education systems. This makes it inevitable to make changes and innovations in education policies. 21st century skills must be included in the school curriculum, teaching and evaluation process (NCREL, 2003). It can be said that technological development, educational environments, applied education, interactive distance education, orientation, access to information-information source, globalization-international education, learning thinking skills will be decisive concepts for education in the 21th century (Gelen, 2017). Studies show that it is possible to gain these skills by integrating them through lessons. It is very important for teachers to have these skills which are aimed to be acquired also by the students (Cansoy, 2018).

Considering the relationship between students' ability to use 21st century skills and the level of teachers' use of these skills, teachers should be trained to have these skills, as well as teacher candidates (Dağhan et al., 2017). In other words, there is a need for

teachers who adopt 21st century skills and strive to transmit these skills to the students. This requires to determine some of the skills and attitudes that teachers should have (Yavuz et al., 2015).

The attitudes and skills that teachers should have are called teacher competencies. Studies are carried out to determine teacher competencies in the world. In this direction, there is a number of studies carried out by the Ministry of National Education in our country. In order to reorganize teacher competencies in line with European Union countries, the Ministry of National Education determined the "General Competencies for the Teaching Profession" in 2006 as a result of studies made by national and international experts, academicians and teachers. These competencies were revised in time and took their final form in 2017. According to that, the general competencies of the teaching profession were grouped under three headings: professional knowledge, professional skills, attitude and values.

The teaching profession competencies in our country are expressed as the teaching profession standards in many countries and even states. There are different approaches in grouping of the competences in the world. For instance, teaching standards in New York State are gathered under 7 headings: knowledge of students and student learning, knowledge of content and instructional planning, instructional practice, learning practice, learning environment, assesment for student learning, professional responsibilities and collaboration, professional growth (NYSED, 2011) . In Australia, the standards are grouped in 3 areas as professional knowledge, professional practice and professional participation, and a total of 7 standards have been determined by detailing each area (Australian Institute for Teaching and School Leadership, 2011).

The American Association of Teacher Training Colleges (AACTE) and the Partnership for 21st Century Skills Strategic Council state that 21st century knowledge and skills should be integrated into education and both teachers and administrators should have these skills (AACTE, 2010). In the 2023 Education Vision prepared by MEB (2018), it is stated that studies will be carried out to provide teachers with 21st century skills.

Significant changes are being made in education systems around the world in order to gain skills such as problem solving, critical thinking, innovative production, effective communication which are called 21st century skills. It was impossible for the education system in our country not to be affected by these developments. As a result, the qualifications that the teacher should have along with the curriculum were redefined. Because the success of reaching the goals designed in the field of education is proportional to the qualifications and competencies of the teachers who direct this process (MEB, 2017). There are studies conducted by the Ministry of National Education to provide teachers with 21st century skills through in-service training. However, teacher

candidates who have not started yet their profession should gain these skills and teacher training programs should be reviewed in this direction. In the studies about the 21st century skills of teachers and teacher candidates different results have been reached. When the studies conducted with pre-service teachers are examined, it is seen that undergraduate programs are sufficient to acquire 21st century skills, and that the teacher candidates consider themselves sufficient regarding these skills (Göksün & Kurt, 2017; Gömleksiz et al., 2019; Bozkurt, 2020; Erdoğan & Eker, 2020). Similarly, when studies on teachers are examined, it is seen that teachers have high perceptions of competence regarding these skills and they use them in their teaching processes (Cemaloğlu et al., 2019; Eğmir & Çengelci, 2020; Gürültü et al., 2020).

It can be said that 21st century skills and technology are highly interrelated. Effective use of knowledge, media and technology skills, which is one of the 21st century skills, supports the learning of other skills such as critical thinking and problem solving, communication and collaboration, creativity and innovation (Lamb et al., 2017*)*. In this respect, technological competence is very important for students to acquire 21st century skills. In this regard, it is necessary to improve teachers' ability to use technology effectively in order for students to use technology effectively (AACTE, 2010).

Technological Competence

Today, technology has become an important element of our life as a result of the use of technology everywhere, its accessibility and its facilities, and hereat, our social life has acclimatized to that. Educational environments also have been affected by these technological developments that have made the society change, and as a result, innovations and changes have been made in learning processes and environments (Usta & Korkmaz, 2010; Menzi et al., 2012). Traditional teaching approach have been leaving its place to the technology-based teaching methods, and both students and teachers benefit more from technology (Erbil & Kocabaş, 2019).

In consequence of the rapid change experienced with the development of science and technology, access to the information has become easier, so that people are able to reach the information from anywhere at any time. As a result of such a rapid change, all the knowledge and experience people need in the 21st century have been put at the service of humanity with the help of digital media (Kozikoğlu & Altınova, 2018). Benefiting from these opportunities at the highest level is one of the priorities of education systems in all societies. In our country, it is aimed that students use information technologies as a means of "production", "developing solutions to problems" and "realizing their dreams" in online and offline environments. For this purpose, digital content will be prepared for students as well as improving the technological infrastructure. With the help of these contents, it is aimed that students reach more easily the information they need.

Thus teachers all over Turkey with the use of digital learning technologies and students are expected to reach equal learning opportunities (MEB, 2018). As a matter of fact, countries in the world have been applying digital learning technology to educate their citizens to be successful in the 21st century. The success of future education systems will be evaluated according to how well the system prepares students for the 21st century's world and Industry 4.0 (Ally, 2019).

Education systems have to prepare students for developing technologies and jobs which is convenient for the human profile required by Industry 4.0 (Ally, 2019). This means raising individuals who use technology more effectively. With the widespread usage of mobile phones and the internet, students are more open to communication. In terms of using technology, 21st century's students who are more successful than their parents and teachers need the guidance of their teachers to use these skills in the field of education (Trilling & Fadel, 2009). In the 21st century's education, teachers should be able to use technology effectively in the learning process (Riandi et al.,2018). In this respect, teachers need support in understanding when and how to use information technologies so as to deal with students' experiences and enrich their educational environments (UNESCO, 2011).

Developments in information and communication technology play an important role in the daily life of most people around the world, and it is natural for the school system to integrate technology into the education process (Malinina, 2015). A wide range of people from all over the world, from educators to politicians, agree that technology is an essential component of education. For that reason, countries have been working significantly to improve the technological infrastructure of schools. In addition, efforts to integrate technology into education programs have been also continuing (Lamb et al., 2017).

Students' learning is also positively affected by the effective use of technology and their integration into the teaching environment by teachers (Menzi et al., 2012). In this respect, it is possible to say that the most important task and responsibility in integrating technology into different lessons belongs to schools and teachers (Şad & Nalçacı, 2015). The most important factor in the development of technology in education is not only the teachers and their attitudes and competencies towards including technology in teaching processes but also their desire to receive more education in this field (Malinina, 2015). As a matter of fact, the implementation of technology-based innovations in schools can be possible with the adoption of it by educators. Therefore, teachers who believe that the use of information and communication technologies (ICT) works will adopt these technology-based approaches. With the integration of ICT into education and harmonization of it with the curriculum, they will contribute to the spread of ICT usage (UNESCO, 2011).

The use of information and communication technologies in education has many benefits for teachers and students. Affecting more than one aspect of education, ICT not only provides students with the opportunity to learn outside of school, but can also change the pedagogical approach of teachers. Therefore, education systems integrate digital competencies more into the education systems and curriculum (OECD, 2019). Efficient integration of technology is possible with the preparation of teachers who encourage and use digital learning (Raob et al., 2012). The successful integration of information and communication technologies in education not only increases the usability and flexibility of education for students, but also helps students to collaborate and use information effectively (Malinina, 2015). On the other hand, it contributes to teachers' structuring the learning environment in unconventional ways, combining technology with the new pedagogy and thus building a more active and collaborative process (UNESCO, 2008).

Important studies are carried out to improve the technological infrastructure in schools in our country as well as all over the world. One of them is FATIH Project (Increasing Opportunities and Improving Technology Project) project. With FATIH Project, it is aimed to equip all classes with ICT tools and to implement ICT-supported education in all classes. In the project, online and face-to-face professional development activities are planned in order to support the training of teachers in the use of ICT in the classroom (UNESCO, 2011). In the face of the 21st century, developing the technological skills of teachers is of great importance in order to improve the quality of learning (Riandi et al.,2018).

The inadequacy of schools in terms of physical and technological equipments prevents the information technologies from its integration into learning and teaching processes (Atalay & Anagün, 2014). Besides, increasing the technological competence of schools is not enough to use new methods and techniques in the teaching process. For this reason, the competence of the people who will be affected by this change should also be taken into account. Because the self-efficacy of the teachers regarding the use of technology directly affects the use of these technologies (Ursavaş, 2014).

Studies are conducted on teachers' ICT competencies in the world and in our country. In the ICT Competence Standards for Teachers project carried out by UNESCO (2008); It is emphasized that it is necessary to develop teachers' ICT skills and contribute to their professional development, to provide teachers with qualifications to integrate their ICT skills into their teaching processes, and to organize teacher training programs in this direction.

There are studies that have reached different results on the technological competencies of teacher candidates. When the researches on the technological competencies of teacher candidates are examined, it's seen that in addition to researches that pre-service teachers

consider themselves to be sufficient (Usta & Korkmaz, 2010; Menzi et al.; Gömleksiz et al., 2019; Kartal, 2019; Erdoğan & Eker, 2020), there are also studies showing that pre-service teachers do not have basic knowledge and skills in effective technology use (Pamuk et al., 2012). When the studies on the technological competencies of teachers are examined; it can be said that there are also studies that teachers consider themselves competent (Güneş et al., 2010; Atalay & Anagün, 2014; Malinina, 2015; Yılmaz, 2016; Gürültü et al., 2020) and studies that teachers think they are not competent to meet the needs of students (Hamlı et al.,2020). In-service trainings are of great importance in developing the technological competencies of teachers. In the study conducted by Erbil & Kocabaş (2019), teachers stated that they benefited from technology in the teaching process, but also emphasized the insufficiency of in-service training. The results show that there are serious differences between the technological competencies expected from teachers and the competencies they actually have. Researches show that teacher candidates cannot gain the use of technology sufficiently during their teacher education process. For this reason, teachers should be supported with in-service trainings, and teacher candidates should be trained with an effective training on this subject (Menzi et al., 2012).

Active use of technology in the educational process contributes to increase the motivation of students, as well as increasing the general information and communication technology competence of both teachers and students (Malinina, 2015). Teachers, who play an active role in helping students acquire these skills, are responsible for creating the appropriate classroom environment and for preparing the learning opportunities that make it easier for students to use the technology. In addition to using technology effectively, teachers should know how to support students in this process and prepare favorable learning environments (UNESCO, 2008). To achive that, it is so important to develop and support teachers professionally.

The integration of technology into learning processes affects students' learning processes inside and outside the school. As a matter of fact, teachers use more technology in many areas such as classroom management, teaching practices and communication. In this respect, information and communication technology proficiency is considered as an important skill that students must acquire (OECD, 2019). In conclusion, when all these are taken into consideration, it is possible to say that the most important task in raising individuals with 21st century skills and technological competence is teachers's. Although studies show that teachers have 21st century skills and technological competence, reflection of these competencies in learning-teaching processes requires a separate competency. In other words, the integration of ICT into the curriculum and technology-supported teaching activities require teachers to have certain skills and knowledge about the learning process with digital tools, preparation of course materials and classroom

management (OECD, 2019). In the teacher training process, skills should also be acquired about how to use this technology in the integration of technology into learning environments and what it means pedagogically (Şad & Nalçacı, 2015). The training of teachers to have these knowledge and skills can also be provided by effective pre-service and in-service training. In this respect, it is very important to review the existing teacher training systems and develop it to gain 21st century skills.

Conclusion

In these days when Industry 4.0 is experienced, great changes are taking place in all areas of life. The rapid change and development of technology, the ease of access to information and the fact that information becomes the greatest power change the lives of societies. Along with the concepts of globalization and internationalization, the characteristics that individuals should own also have changed over time. In the 21st century, the knowledge and skills that people should have also have changed. Education system is one of the systems that is most affected by these changes. The greatest function of education is to prepare individuals for the future and the challenges they may face in the future.

Societies are affected in different ways by these changes and these changes are reflected in educational policies and processes differently. These skills sought in individuals today are called 21st century skills. Although some studies say that these skills were important in education in the past centuries and even have existed since Socrates, some concepts are quite new in our lives. In today's world, where skills such as problem solving, critical thinking, innovative production, and information literacy are referred to as 21st century skills, it is stated that the task of education systems is very important for students to gain these skills. It is obvious that teachers have the most important role in raising students with these skills. In this respect, it is an indisputable fact that teachers should have these skills themselves. Today, where traditional teaching methods are frequently used, researches show that teachers should be supported both before and in service in order to gain 21st century skills.

21st century skills and technology are two important inseparable components and are highly interrelated. In particular, the changes in technology in recent years have pushed education systems to change in this direction, education programs have been affected by this process, and efforts have been made to integrate technology into the curriculum. Integrating technology into the curriculum and teachers' competencies in this regard have gained particular importance, especially in today's very extraordinary times. In the "General Competencies for Teaching Profession" prepared by the Ministry of National Education (2017), the vocational skills that teachers should have are included. One of these skills is expressed as managing the teaching and learning process and is included in this

section as one of the sufficiencies that "effectively uses information and communication technologies in the teaching and learning process." Today, the concept of technological competence has also changed. The ability of teachers to be technologically competent also affects their effective use of technology in learning-teaching processes. In this respect, it is inevitable for teachers to have these competencies and develop themselves in this direction in today's education system, where concepts such as technological development, interactive distance education, access to information, and digitalization are highly involved.

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