

CURRENT ACADEMIC STUDIES IN EDUCATIONAL SCIENCES



Editor

Prof. Dr. Abdülkadir KABADAYI

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PROF. DR. ABDÜLKADIR KABADAYI



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FOREWORD

The theme of this year's book is *Current Academic Studies in Educational Sciences* with many researches now taking on global dimensions, it is imperative to discuss innovative approaches towards educational sciences including the best research integrity practices. I believe that this book could serve as a catalyst for strengthening international cooperation on the transfer of innovative approaches towards education.

The challenges in educational sciences are both difficult and interesting. Academicians are working on them with enthusiasm, tenacity, and dedication to develop new methods of analysis and provide new solutions to keep up with the ever-changing world. In this new age of global interconnectivity and interdependence, it is necessary to provide security practitioners, both professionals and students, with state-of-the art knowledge on the frontiers in educational sciences. This book is a good step in that direction.

In total, 22 chapters were presented in the book. This volume contains 12 of the chapters that were presented to editorial boards. In keeping with the format of the book, the papers are published in English. This year's book received over 22 submissions investigating a wide variety of field to general education topics.

This book provides a valuable window on educational sciences and covers the necessary components from educational administration to preschool education. *Current Academic Studies in Educational Sciences* addresses especially educators, researchers, academics, postgraduate students, pre-service teachers, teachers and school leaders own development. It makes recommendations to educators, researchers, academics, postgraduate students, pre-service teachers, teachers, school leaders and policy makers and so on

The editor would like to thank all of the authors who made this book so interesting and enjoyable. Special thanks should also be extended to the reviewers who gave of their time to evaluate the record number of submissions. Especially to the LVRE DE LYON Publishing House, we owe a great debt as this book would not have been possible without their consent efforts.

At this juncture, I would like to thank the authors for all of their cooperation. We hope that all of those reading enjoy these chapters of the book as much as possible.

Prof. Dr. Abdülkadir KABADAYI

Editor

CONTENTS

Foreword		I
Chapter I	A Solution Proposal to the Problems Experienced in Distance Education Applied in the Covid-19 Process: Sustainable Leadership	1
Chapter II	Teacher Training For Distance Education: A Case Study on Elt Faculty’s Perceptions in Three Turkish Universities	26
Chapter III	Unlocking all the Doors for all Children: Contributions of Outdoor Plays to the Developmental Domains of Preschoolers Regarding Preservice Teachers’ Views	46
Chapter IV	A Comparative Analysis of the First Transformation Implementations of Developed and Developing Countries To Emergency Remote Teaching at the Covid-19 Pandemia Process	65
Chapter V	Sustainable Development 2030 Agenda, Within the Scope of Qualified Education in the Context of Turkish Education	92
Chapter VI	Descriptive Analysis of the Studies on the Use of Internet of Things (IoT) in Educational Environments	118
Chapter VII	Information and Communication Technologies in the Pre-School Period	138
Chapter VIII	Moocs in Language Learning: A Scoping Review	161
Chapter IX	Early Literacy and the Reading-Writing Process	184
Chapter X	Curricula Learning Outcomes and Epistemological Scope in Turkey	214
Chapter XI	Meta-Synthetic Review of Studies on Efl Teachers’ Tpack in Turkey	259
Chapter XII	The Development Process of Preschool Education in “Shoura” National Education Consultation Councils	285

CHAPTER I

A SOLUTION PROPOSAL TO THE PROBLEMS EXPERIENCED IN DISTANCE EDUCATION APPLIED IN THE COVID-19 PROCESS: SUSTAINABLE LEADERSHIP

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1. Introduction

The COVID-19 pandemic, which has dominated the world and has brought normal life to a standstill, has been an extraordinary experience. The pandemic has deeply affected many fields of life, including the economy, education, and especially health. The effect of the pandemic is expected to continue for a long time, and there is an ongoing discussion regarding the type of educational practices and necessary applications (Wolff, 2020). Although there are problems at some schools due to the lack of preliminary preparation and experience in the distance education process, it has been identified that the process has been well managed in some schools (United Nations Educational, Scientific and Cultural Organization, 2020). Thus, this issue has become the subject of discussion.

Various measures have been taken in order to reduce the negative effects of the pandemic on education in different countries around the world. On 26 January 2020, educational institutions at all levels were closed in China, which is where COVID-19 originated from. Then, as the impact of the pandemic expanded, schools began to discontinue education in other countries. According to the figures announced by United Nations Educational, Scientific and Cultural Organization (UNESCO) on 17 April 2020, 1,724,657,870 students across 191 countries were affected by this process and had their face-to-face education interrupted.

Online platforms have been used in order to ensure the sustainability of education in countries with Internet and infrastructure facilities (Argentina, Croatia, China, Cyprus, Egypt, France, Greece, Italy, Japan, Mexico, Portugal, Republic of Korea, Saudi Arabia, the United Arab Emirates, the United States, etc.) (UNESCO, 2020). When face-to-face education was paused in Turkey on 16 March 2020, distance education began on Eğitim Bilişim Ağı (EBA), the official website of the Ministry of Education (Education Information Network) starting on 23 March. With the introduction of distance education around the world, administrative and educational problems occurred. A guide presenting the steps to be taken in order to implement a more successful education process was prepared by The Organisation for Economic Co-operation and Development (OECD) aimed at supporting educational decision-making processes that will help to sustain effective education during the COVID-19 pandemic (The Organisation for Economic Co-operation and Development, 2020).

It was stated in the guide that principals play a key role in minimizing the negative impact of the outbreak. Although some countries have a centralized understanding of their approach to the pandemic, it was emphasized that leading educators need to adopt a proactive approach. The emphasis was mainly on subjects such as ensuring effective communication between students and educators according to their area of influence, providing tools and equipment for disadvantaged students to continue their education, establishing cooperation between teachers, and providing education services for teachers and effective parenting support for parents pandemic (OECD, 2020). These aspects serve as a recommendation for all countries, and each country has implemented various practices to ensure the sustainability and future opportunities of education within its own system.

Although there are a variety of practices, the main aim of all countries is to ensure the continuity of education and to prevent the rising generation from falling short in terms of education. Education is important for the future of the entire world, and every step taken today is valuable for a better future; therefore, the quality of education management has come to the fore in the course of the pandemic. Understanding the characteristics of leaders who manage this process effectively is important in terms of being prepared for future pandemics and similar situations.

It is thought that the leadership qualities of principals should extend beyond simply fulfilling the duties imposed on them and should include conscientious responsibility for a better world. There are many leadership models in the literature, and each of them has their own unique characteristics. However, concerning creating a better future for future generations, it is thought that the sustainable leadership model differs from that of the other approaches.

Because the sustainable leadership model—which is required in extraordinary times such as during the COVID-19 pandemic—refers to leaders that act as a bridge between the present and the future, that provide rapid adaptation to change, that produce rapid solutions in times of crisis, and that develop the actors involved rather than consuming them (Hargreaves & Fink, 2006; Lambert, 2011; CPSL, 2018), it can be said that the key elements of sustainable leadership are the ability to ensure the continuity of education by considering disadvantaged situations and groups and the ability to play effective roles in extraordinary situations.

Effective leadership is needed to ensure the sustainability of education, especially in extraordinary situations such as during pandemics. Therefore, sustainable leadership skills and perspectives are thought to play a key role in emergency cases, such as that of the COVID-19 pandemic, and their aftermath.

Sustainable leaders see themselves as responsible professionals who influence the communities in which they belong by mean of their behaviors. One of the significant moral norms of leaders has been found to be that they ensure student- and learning-centered principles are the main focus of teachers' practices and school philosophies (Day & Schmidt, 2007).

One of the main goals of the “Sustainable Development Goals 2030” set at the United Nations Sustainable Development Summit, held at the United Nations Headquarters on 25–27 September 2015 (United Nations, 2020) is to “Ensure inclusive and equitable quality education and promote lifelong learning

opportunities for all.” The concept of sustainability has begun to be mentioned more frequently in the field of education in the context of this goal.

A limited number of studies in Turkey have started to discuss the concept of sustainability (Veisson & Kabadayi, 2018) and sustainable leadership, which first emerged in the early 2000s, in recent years. It is believed that the growing appearance of this concept in developing countries such as Turkey will contribute significantly to the efforts regarding the development and sustainability of education. The present study contributes to the literature in Turkey regarding the concept of sustainable leadership, which has been previously studied in the Western world but herein was carried out in the context of Turkey, and could represent an example for other countries with similar disadvantages. For such reasons, this study sought to answer the following question: According to teacher’s opinions what is the role of sustainable leadership in the management of distance education in the course of COVID-19?

2. Literature Review

2.1 Sustainable Leadership Concepts

The concept of sustainability is included in the literature with dimensions and scopes specific to different fields. The concept of sustainability expresses an understanding that aims at the economic use of all resources for the environment in the long term in terms of sustainable development and foresees long-term ecological benefits to replace short-term economic benefits (Bayraktutan & Ucak, 2011). Another definition is the fulfillment of actions or activities at the highest level with a long-term perspective with a focus on the future (Yangil, 2016). As can be seen from these explanations, it can be said that the concept of sustainability has an important place in terms of economy and ecology. Although sustainability is mostly used in the fields of ecology and economy (Kabadayi & Altınsoy, 2018), it has been used in several studies regarding the concept of leadership in the field of education since the early 2000s (Hargreaves ve Fink, 2003), and new research works have been conducted on the subject (Fullan, 2002; Hargreaves ve Fink, 2003; Hargreaves ve Fink, 2006; Hargreaves, 2005; Fullan, 2005; Lambert, 2003; Davies, 2007; Lambert, 2012; Mcalister ve Catone, 2013; Cook, 2014).

Hargreaves and Fink (2003), who used this concept in the field of education for the first time, defined sustainable leadership in the context of education as

“leaders who encourage deep learning, protect and develop deep learning and spread and sustain their knowledge in a way that provide and will continue to provide benefit to everyone around them.” Šimanskienė and Zuperkiene (2014) on the other hand, sustainable leadership; fostering the successful management of sustainability ideas by evaluating the ecological, social, and economic principles of sustainability in the context of a group, organization, and society; It refers to leaders who take responsibility for individuals, groups, and organizations. According to Metcalf and Benn (2013) sustainable leaders are individuals with high emotional intelligence, who can reflect on complex problems, adapt to the organizational change experience of the groups, and control individual emotions in complexity. The common feature of all these definitions is that sustainable leadership aims to leave a better future.

Hargreaves and Fink (2003), who laid the foundations of sustainable leadership models, also identified seven principles of sustainable leadership in their study. The first of these principles is the creation of a learning environment that emphasizes the importance of sustainable leadership in the field of education, as well as the protection of this environment. According to Hargreaves and Fink, *sustainable leadership creates and maintains a sustainable learning environment*. This principle is based on the creation of a learning environment in which students are considered to be intellectually, socially, and emotionally important. The second principle is that *sustainable leadership ensures success over time*, which places emphasis on making success permanent. The third principle that *sustainable leadership maintains the leadership of others* encourages the selection of a leader who supports the leadership of others. The fourth principle is that *sustainable leadership considers social justice*, which includes the understanding of justice, along with solutions to the social inequalities in the education system. It is stated that a sustainable leader should consider social justice within the framework of their own possibilities.

The fifth principle is that *sustainable leadership improves environmental diversity and capacity*. This principle emphasizes the importance of a leader that collaborates and supports teamwork in the development of learning and teaching environments. The sixth principle is that *sustainable leadership develops human and material resources rather than consuming them*, stating that sustainable leaders aim to develop human or material resources rather than reducing them. The seventh principle that *sustainable leadership deals with the environment and its activist participation* emphasizes that the leader must work to interact with

their environment. Hargreaves and Fink (2006), who have been studying these principles over many years, expanded these principles and collected them under the headings Depth, Endurance, Breadth, Justice, Diversity, Resourcefulness, and Conservation in their book *Sustainable Leadership*. They also included parents' support and professional development in the formation of a *deep learning* environment. The continuity of sustainable leadership is emphasized with the concept of *Endurance*, in which the continuation of change and improvement, especially under poor conditions, were emphasized. Here, *Breadth* emphasizes providing support to the development of school stakeholders, while *Justice* and education stress that education is not only reserved for distinguished students or teachers. *Diversity* refers to the creation of a common culture that recognizes and improves the abilities of individuals and where mission and goals are shared. *Resourcefulness* refers to the efficient use of all kinds of resources, while *Conservation* refers to the setting of a bridge between the past and the future.

Lambert (2011) made some contributions to the model by emphasizing the similarities in the principles. He gathered the principle of inclusion and the concepts of length, breadth, resourcefulness, conservation, and patience proposed by Hargreaves and Fink (2003) under one concept, i.e., *Developmentality*. Thus, Lambert's model consists of six headings, namely, *building personnel capacity, strategic distribution, consolidation, producing long-term goals from short-term goals, diversity, and conservation*.

A significant step toward training sustainable leaders was taken by introducing the Cambridge University Sustainability Leadership Program, and it was explained that individuals who receive this training could acquire the seven main characteristics of sustainable leadership, which were determined to be *systematic understanding, emotional intelligence, value orientation, attractive vision, inclusive style, innovative approach, and long-term perspective* (CPSL, 2018).

2.2 The Role of Sustainable Leadership in Education

Taking into consideration that the individuals that will constitute the future of education have also been trained by the education system, it is believed that sustainable leadership plays an important role in educational administration. Although sustainable leadership has been studied in a limited number of research works since the early 2000s, more studies (Hargreaves and Fink, 2005; Davies, 2007; Hoyle and Wallace, 2005; Bottery, 2012; Svensson and Wood, 2006) have been presented on this subject in recent years. The leadership qualities expected

from principals have been especially affected by the change and transformation process experienced in the age of information, and the scope of the concept of “effective” leadership has been expanded. Quinn and Dalton (2009) in their research conducted on senior executives that adopt sustainability practices, stated that leaders in these institutions are similar to “effective” leaders, and that they increase the quality of education by including stakeholder diversity and different perspectives in the management process. The ability to create positive psychological effects such as hope, courage, honesty, and service is included in this (Schwalb, 2011).

It can be said that these skills coincide with the concepts of hope, optimism, and resilience, which are also included in the positive psychological capital theory (Luthans, 2005). The concept of hope expresses the establishment of goals and the effort shown for this purpose; optimism is based on increasing the effects of desired events by reducing the effects of undesirable events; resilience is the ability of a person to overcome change processes such as uncertainty, conflict, and increasing responsibility (Luthans, Avey, Avolio, Norman, Combs, 2006). Considering that these concepts make a motivational contribution to the achievement of tasks and goals, it can be said that these features are related to sustainable leadership (Avey, Luthans, Mhatre, 2008). The structure of sustainable leadership that expands from the individual to the organization and society also includes the organizational culture, teamwork, and sustainable relationships based on loyalty (Šimanskienė and Župerkienė, 2014). In the management process of educational institutions, it is considered that an administrative attitude based on trust and cooperation is important in order to ensure the sustainability of education, especially in extraordinary situations such as during pandemics.

In this context, Kennedy (2011) showed that teachers perceive communication and cooperation as a feature of sustainable leadership. Communication skills and the cooperation of principals with sustainable leadership characteristics also positively affect corporate culture and support the development of personnel (Kantabutra and Saratun, 2013). Sustainable leadership features such as ensuring teachers’ participation in decisions and supporting their personal development are among the characteristics that leaders should have, as shown in Cook’s study (2014). Including teachers in the management process by involving them in the decision-making processes and supporting their personal development can be considered as an indicator of the Depth and

Breadth principles of sustainable leadership, revealing the differences between sustainable and unsustainable leadership and emphasizing the effectiveness of sustainable leadership (Šimanskienė and Župerkienė, 2014). It is thought that a similar emphasis will become prominent during the COVID-19 pandemic, as addressed in this study. Metsämuuronen, Kuosa, and Laukkanen (2014), who also analyzed the relationship between Finland's high-level Programme for International Student Assessment (PISA) results and sustainable leadership, found a positive relationship between the success and sustainable leadership characteristics of principals. A similar emphasis has been found in a limited number of studies carried out in Turkey in the field of education. Taşçı and Titrek (2020) discussed lifelong learning centers in higher education institutions from the perspective of sustainable leadership in their research; they emphasized the importance of sustainable leadership qualities such as communication and cooperation that are required in organizational management in lifelong learning. Yollu (2017) stated that school principals should maintain a balance within the school community based on social justice, lifelong learning, and trust by following new trends in education and by preserving the school culture. Çaylak (2018) examined the level of school principals' sustainable leadership behaviors according to the perceptions of teachers, and it was concluded that teachers see their principals as sustainable leaders in terms of economic, administrative, cultural, and social sustainability dimensions. The dimensions discussed in the study are considered to contribute to the field in terms of understanding the scope of sustainable leadership. Çaylak's (2018) administrative sustainability dimension was used within the scope of this research, and in this context, the principles of Hargreaves and Fink were taken as a basis for the research within the framework of administrative sustainability.

2.3 The Role of Sustainable Leadership in Distance Education During the COVID-19 Pandemic

The effect of sustainable leadership on increasing the quality of education in general has been explored in the literature. It is also expected to be effective in terms of the extraordinary education requirements in the course of COVID-19. In the context of Hargreaves and Fink's principles and the literature, the behaviors expected from school administrators who show sustainable leadership characteristics in the management of distance education in the course of COVID-19 are displayed in Figure 1.

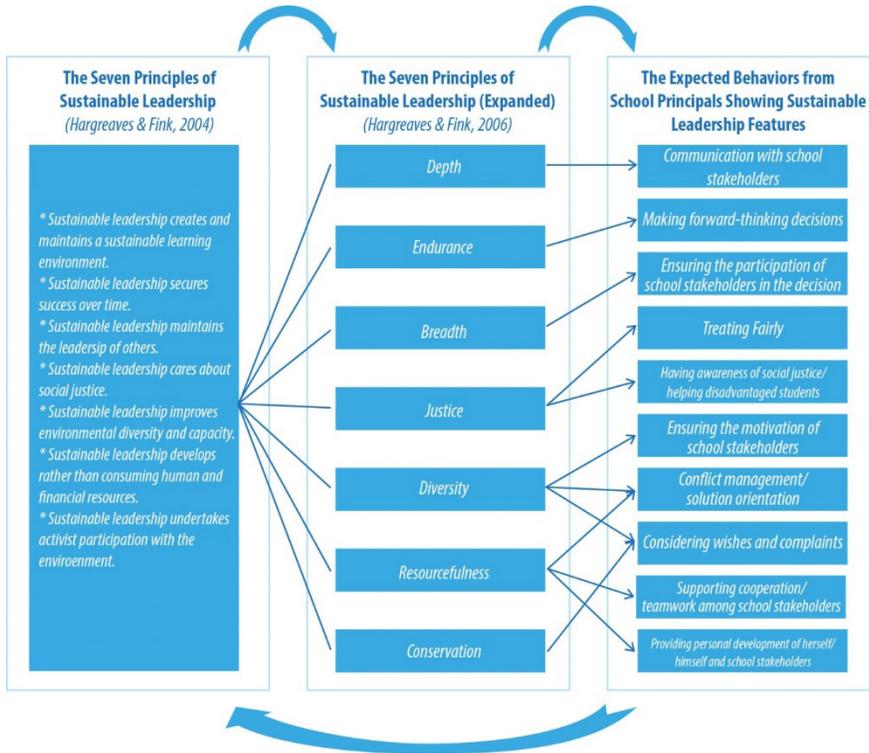


Figure 1: Behaviors Expected From School Administrators Who Show Sustainable Leadership Characteristics in The Management of Distance Education.

As can be seen in the figure, the sustainable leadership model developed by Hargreaves and Fink continues to be developed with the contributions of other researchers (Fulan, 2005; Lambert, 2012; Davies, 2007). Considering these principles, sustainable leadership has common features with many other leadership models, except for one distinctive feature—the responsibility for future generations within its sustainability approach (Hargreaves, 2007). Sustainable leadership is based on the understanding of leaving a better world for future generations; one of the steps to achieve this is to provide qualified education opportunities to the generations that will form the future.

In order to maintain education during the course of the COVID-19 pandemic, distance education has been implemented. However, due to the extraordinary character of the situation, the sufficient sustainability of education—even though the practices are based on the central system—has remained dependent on the leadership skills of school principals. In the process, the leadership styles of the principals have gained importance. Considering

the basic principles of sustainable leadership, it is thought that managers who act in line with this understanding manage the process in a more appropriate manner. In this context, the behaviors expected from school principals in the distance education process are explained below. The Depth principle refers to any initiative, from ensuring parental involvement to supporting professional development in order to establish a learning environment. Principals should create the learning environment in such a way that facilitates and supports learning and is in accordance with the needs of the students. In the distance education process, sustainable communication should be maintained between stakeholders in order to create a learning environment based on this principle. School principals are also expected to establish a *communication network with school stakeholders* and to be in dialogue with teachers, students, and parents throughout the distance education process. The basis of this communication is to ensure the participation of students in distance education.

The Endurance principle refers to the concept of sustainability. Sustainable leadership is ongoing and includes a long-term vision. In this context, the *ability to make forward-thinking decisions* and the ability to make decisions that will ensure the sustainability of the system are among the expected behaviors. School principals should analyze the situation in the distance education process, which was implemented without preparation due to the pandemic, and should act in line with near-future and distant goals. Thus, education should be able to continue even when the principal is not present.

The Breadth principle represents the expansionist understanding of sustainable leadership. Therefore, school principals, as sustainable leaders, are expected to pay attention to teachers' participation in decisions. This principle also supports collaborative teams with leaders. *Ensuring the participation of school stakeholders* in all kinds of decisions in the distance education process will increase the quality of the education. It is also stated in the literature that participation in the decision-making process increases teachers' performance and positively affects students' success (Yollu, 2017).

The principle of Justice is based on the notion that sustainable leadership is not simply for outstanding students and teachers; this emphasizes the importance of information and resource exchange. A leadership style based on social justice is therefore advocated. On the basis of this principle, school principals are expected to *have awareness of social justice/help disadvantaged students and act fairly*. Thus, the sustainability of education will be improved by creating

opportunities for students and teachers who do not have access to education opportunities in the distance education process. It is believed to be important for the leaders to have this understanding, especially since the interruption of education for students who do not have access to computers and the Internet will cause various problems in the future.

The Diversity principle is based on the understanding of developing individuals by recognizing the differences, uncertainties, and variability that this situation has provoked. It supports individuals in their adaptation to complex situations by improving their abilities; thus, resistance to change can be avoided. The COVID-19 pandemic has had a negative psychological impact on all members of society, especially on students and teachers. Since the distance education process is a new experience for all stakeholders, it intrinsically presents the problem of resistance. Ensuring the adaptation and motivation of teachers, students, and parents to the process is important for the quality and sustainability of education. For this reason, principals can provide quality education *by motivating the school stakeholders to show conflict management and solution-oriented behaviors between stakeholders, taking into account the wishes and complaints regarding the experiences in the process.*

The Resourcefulness principle is based on the development of human and material resources rather than their consumption. This aims to ensure the efficient use of resources by creating an optimistic perspective for the reforms needed to be made and by encouraging hope regarding the expected results. At this point, it is thought that the management and development of human resources is necessary for the quality of education in the distance education methods implemented during the course of the COVID-19 pandemic. In order to achieve this, school principals are expected *to support cooperation/teamwork among school stakeholders, to show conflict management and solution-oriented behaviors, and to ensure the personal development of himself and the school stakeholders.*

The Conservation principle is based on structuring the future by learning lessons from past experiences. This ensures the protection of the rituals and traditions of the school. It is believed that the foundations of a better future are laid today; therefore, principals with sustainable leadership characteristics act as a bridge between the past and the future. In the distance education process, behaviors such as interacting in such a way that allows connection with the pre-pandemic period and for rituals to be maintained, as well as making decisions about the future by considering the lessons learned from the past, can be

discussed within the framework of this principle. Accordingly, school principals are expected to *communicate with school stakeholders and make forward-thinking decisions* during the distance education process.

The above-mentioned principles of Hargreaves and Fink and the behaviors expected from school administrators who show sustainable leadership characteristics in the context of the literature are aimed at managing the distance education process in the course of COVID-19. The behaviors expressed in this study are considered to be the behaviors required to ensure the sustainability of education in this distance education process. In the normalization process, behaviors can be diversified in the context of these principles.

3. Method

In this mixed-method research, an exploratory sequential pattern was used. In this design, qualitative data were collected and analyzed in the first phase, and in the light of the findings, quantitative data were collected and analyzed in the second phase (Creswell, 2009). This exploratory sequential pattern was used to generalize the qualitative findings in different samples (Babbie, 2013). In this context, the opinions of teachers were received according to the qualitative research method used in the first phase. In the second phase of the research, the qualitative findings were expanded via a questionnaire developed in the framework of the qualitative research and the literature. Since the survey provided the opportunity to work with a larger sample, it increased the validity of the research by increasing the representation level of the population (Özdemir, 2018).

Due to the use of exploratory sequential patterns in the research, two different samples were taken from the same population for qualitative and quantitative dimensions. In the first phase of the research, opinions of middle school teachers working in schools in which distance education was applied in the Bayraklı district of İzmir were received. The study group was determined according to the criteria of criterion sampling method (Patton, 2002); distance education by teachers throughout the course of COVID-19 was determined as a criterion. Accordingly, the working group consisted of 16 teachers working in secondary schools that applied distance education during the COVID-19 period. Opinions were collected via a semi-structured interview via the Zoom program. Expert opinions were taken to ensure the validity of the interview format developed by the researcher. Meeting hours were determined with the

teachers before the interviews, and the interviews generally lasted between 30 and 40 min. Content analysis was applied to the data.

In the second phase of the research, in the context of the finding that principles who show sustainable leadership characteristics manage the distance education process more effectively, the qualitative findings were expanded via a questionnaire developed within the framework of the qualitative research and the literature. On this basis, the questionnaire ‘The Role of Sustainable Leadership in Distance Education During the COVID-19 Process’ was developed. The survey was limited to the managerial dimension of sustainable leadership, and the concept of ‘principal’ used in the study was limited to ‘school manager’. After the items were developed, experts were consulted regarding the draft version. After the corrections were made, the questionnaire was distributed to a trial group of 20 people. The survey was finalized after corrections were made according to the feedback.

There are 2301 teachers working in the Bayraklı district of İzmir. According to the number of teachers in the population, the minimum number of teachers that should be included in the sample was determined to be 332, with a maximum of 500 people, using the sample calculation formula recommended in the 95%–98% confidence interval (Özmantar, 2018). Accordingly, the final version of the questionnaire was delivered to the teachers through the school WhatsApp groups and the data collection process was completed. In total, 360 out of the 500 questionnaires distributed were included in the study, and the data were analyzed in terms of frequency and percentage scores.

4. Findings

In this section, we present our findings within the framework of teachers’ opinions related to the role of sustainable leadership in managing the distance education process implemented due to the COVID-19 pandemic. Qualitative research is shown in the first phase, while quantitative research is shown in the second phase.

4.1 *Phase 1 of the Research*

In the first stage of the research, during the interviews made with the Zoom program, the teachers were asked questions such as “Do you find your managers successful in managing the distance education process applied during COVID

19?” and “What characteristics of your manager do you think are related to this?.” Teachers’ opinions were probed on the basis of these questions and according to the course of the interview. The themes and sub-themes formed by these views are shown in Table 1.

Table 1: Teachers’ Views on The Management of The Distance Education Process Applied Due to COVID-19

Main Themes	Sub-Themes	Views
Sustainable Leadership Features of Managers Effectively Managing the Distance Education Process	1. Communication (<i>n</i> = 10)	Our school principal has always been in contact with us and the parents since the very beginning of the process. He reached out and asked about our conditions and our needs. He always showed interest. (T9)
	2. Solution-oriented (<i>n</i> = 9)	I was having trouble at the beginning of the process because my lesson hours coincided with my kids’ classes. The manager immediately made my class hours suitable for me. The schedule was designed not only according to my situation, but also to the wishes of all teachers. (T7)
	3. Motivating (<i>n</i> = 9)	The principal motivated not only us, but also our students and parents in the process. He shot hope-inspiring videos and sent them to us and families. We teachers shot a video as well. All of the teachers, including the principal, shot individual two-minute speech videos, merged them into a single video, and sent it to the students and their families. The feedback was very good. (T11)
	4. Reliable and Fair (<i>n</i> = 8)	Our school principal gave us a sense of confidence throughout the process. I felt that we could trust him in case of any problems. He was very fair while distributing the classes. He did all the planning by taking into account our opinions. (T12)
	5. Helpful (<i>n</i> = 8)	I had a student in my class who had economic difficulties. He had neither a computer nor tablet for distance education. When I shared the situation with the principal, he asked for support from a philanthropist and enabled the child to follow the lessons.

Characteristics of Managers Not Considered to Act Effectively in the Distance Education Process	1. Confrontational <i>(n = 5)</i>	Our opinions were not asked even in the planning of the lessons. Those who were opposed to the decisions were harshly warned. (T1)
	2. Oppressive <i>(n = 5)</i>	Although distance learning is based on volunteering, our manager forced us to give distance classes. This led to controversies. Some of my colleagues did not agree to giving online lessons. (T2)
	3. Bureaucratic <i>(n = 6)</i>	As usual, the bureaucracy was cumbersome in this process. We were asked to write weekly reports, keep lists, and make plans. We had to deal with unnecessary correspondence in the middle of all that depression. I felt pressure trying to get used to the distance education process and dealing with household responsibilities at the same time. (T1)

As seen in the table, according to the opinions of the teachers, some basic leadership features stand out in the effective management of the distance education process. For example, the principals who were thought to manage the process effectively were seen to communicate frequently with teachers and parents, provide information about the process, play facilitating roles by providing quick solutions to problems, exhibit motivating attitudes, and show reliable and fair approaches. These characteristics can be explained by the administrative dimension of sustainable leadership.

On the other hand, it was found that the administrators who were unable to manage the distance education process effectively according to the opinions of the teachers avoided taking the initiative and had confrontational and oppressive attitudes toward the teachers. These findings indicate that, based on the managerial dimension of the sample in which the qualitative research was conducted, sustainable leadership plays an important role in ensuring the sustainability of education in times of crisis such as during the COVID-19 pandemic. However, in order for these findings to be generalized, the second stage of the research was carried out.

4.2 Phase 2 of the Research

In the second stage of the research, a questionnaire was developed on the basis of the qualitative findings and the literature. In order to link the analysis of the questionnaire with the first phase of the research, we began with the question, “Do you find your managers successful in managing the distance education process implemented due to COVID 19?,” which was answered “yes” by 162 people, “partially” by 86 people, and “no” by 112 people. The percentage distribution of the answers of those who found their managers successful by giving the answer “Yes” is shown in Table 2.

Table 2: Teachers’ Views Regarding The Role of Sustainable Leadership in Managing The Distance Education Process Implemented Due to COVID-19.

Items “Yes” (Total $n = 162$)	Yes	Partially	No
1. Did your school principal communicate directly with the teachers about the process during the distance education process?	100% ($n = 162$)	0%	0%
2. Did your school principal communicate directly with the students during the distance education process?	100% ($n = 162$)	0%	0%
3. Did your school principal communicate directly with parents about the process during the distance education process?	100% ($n = 162$)	0%	0%
4. Did your school principal support cooperation/ teamwork among teachers in the distance education process?	88% ($n = 143$)	9% ($n = 9$)	10% ($n = 10$)
5. Did your school principal include teachers in the decision-making process during the distance education process?	83.9% ($n = 136$)	7.4% ($n = 12$)	8.6% ($n = 14$)
6. Did your school principal use new technologies (tools such as Zoom and Teams) for meetings during the distance education process?	100% ($n = 162$)	0%	0%
7. Did your school principal take forward-thinking steps regarding practices in the distance education process (suggestions that could be applied before the Ministry of National Education announcement, etc.)?	58.6% ($n = 95$)	7.4% ($n = 12$)	55% ($n = 33.9$)

8. Did your school principal behave fairly in the distribution of duties during the distance education process?	63.5% (n = 103)	14.8% (n = 24)	21.6% (n = 35)
9. Did your school principal effectively manage conflicts during the distance education process?	70.9% (n = 115)	12.9% (n = 21)	16% (n = 26)
10. Did your school principal share their knowledge and skills with teachers during the distance education process (technological applications, classroom management, problem-solving strategies, etc.)?	48.1% (n = 78)	29% (n = 47)	22.8% (n = 37)
11. Did your school principal support the personal development of teachers in the distance education process?	85.1% (n = 138)	10.4% (n = 17)	4.3% (n = 7)
12. Did your school principal consider wishes and complaints in the distance education process?	79.1% (n = 128)	4.3% (n = 7)	16.6% (n = 27)
13. Did your school principal take actions to increase the motivation of the teachers in the distance education process?	96.2% (n = 156)	2.4% (n = 4)	1.2% (n = 2)
14. Did your school principal take actions to increase students' motivation during the distance education process?	69.7% (n = 113)	9.2% (n = 15)	20.9% (n = 34)
15. Did your school principal support disadvantaged students in the distance education process?	43.2% (n = 70)	15.4% (n = 25)	41.3% (n = 67)

As seen in the table, according to the opinions of the teachers who found their managers to be successful in the distance education process, these principals showed sustainable managerial leadership characteristics such as communicating with school stakeholders (100%), being motivating (96%), collaborating (88%), supporting personal development (85%), including teachers in decision-making (83%), and being solution-oriented (i.e., conflict management (70%) taking wishes and complaints into account (79%). As a result of these findings, it was concluded that the quantitative data support the qualitative data.

5. Results, Conclusions, and Recommendations

In this research, the role of sustainable leadership in the management of the distance education process implemented due to the COVID-19 pandemic was explored via the opinions of teachers. The results of the research and some recommendations are given below.

According to the results of the research summarized in Figure 2, it is understood that sustainable leadership plays an active role in the management of distance education practices implemented due to COVID-19. According to the teachers' opinions, there was a relationship between the behaviors of school principals who were thought to manage the process effectively and the sustainable leadership principles.

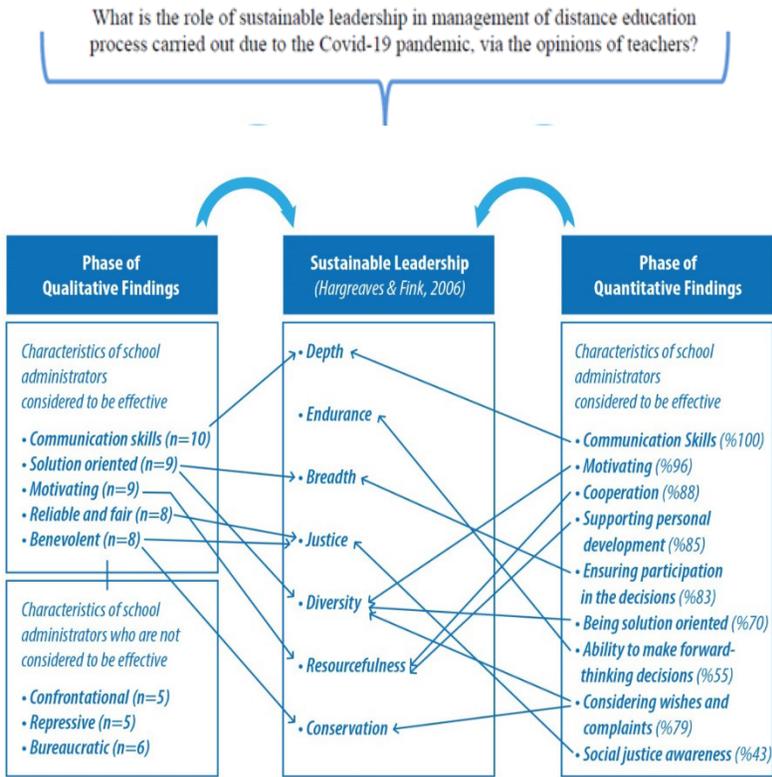


Figure 2: Summary of The Research.

According to the opinions of teachers collected in both qualitative and quantitative data formats, school principals who were found to be effective in the distance education process demonstrated behaviors such as having communication skills, being motivating and initiating cooperation to adapt groups to change, providing participation in decisions, anticipating complexities, and focusing on solving complex problems, described as sustainable leadership in the literature (Avery & Bergsteiner, 2010; Hargreaves & Fink, 2003;2006;2011; Lambert, 2011; Metcalf & Benn, 2013;Šimanskienė & Župerkienė, 2014).

According to the teachers' opinions collected via interviews in the first stage and via a questionnaire created to expand the qualitative data in the second stage, school principals who displayed behaviors based on sustainability principles played a key role in the sustainability of education by managing the process more effectively.

Communication skills can be considered to be an indicator of the Depth principle, just as forward-thinking decision-making can represent the Endurance principle; contributions to decisions can represent the Breadth principle; benevolence to disadvantaged people can represent the Justice principle; being solution-oriented can represent the Diversity principle; being motivating, caring about cooperation, and supporting personal development can represent the Resourcefulness principle; considering requests and complaints can be representative of the Conservation principle. Teachers who found the distance education management process successful claimed that the school principals with these skills made a positive contribution to the effectiveness of the process.

In this context, it was concluded that the school principals who possessed sustainable leadership features were found to sustain education in a qualified manner in a time of sudden change and crisis faced during extraordinary situations such as a pandemic. According to the teachers' opinions during the qualitative phase of the study, it was observed that the school principal's continuous communication with both students and parents during the pandemic process was important in terms of the sustainability of the education process. A similar result was also found in the quantitative phase of the study. According to teachers' opinions, the communication skills of school principals who managed the process effectively were found to be high. This result correlates with the ability to create an education environment, as mentioned in the Depth principle by Hargreaves and Fink. This result is also in line with the findings regarding *communication and cooperation in environment of trust* as shown by Kennedy (2011), who examined how selected school members in a primary school perceived the sustainability of their school principals.

The features of sustainable leadership, such as effective communication with stakeholders and cooperation, were also mentioned in higher education institutions, and were included in the findings of the research carried out by Taşçı and Titrek (2020) in lifelong learning institutions.

In this context, it can be argued that managers with sustainable leadership characteristics will be effective at all levels of education. Communication skills

also include the ability to support personal development, include teachers in the decision-making process, take into account wishes and complaints, and ensure cooperation and teamwork in the qualitative stage of the research. Herein, it was concluded that school principals consulted teachers' opinions on the timing and modes of distance education, and this situation was perceived positively by the teachers.

In addition, efforts to solve any problems experienced in the process, sending videos with the aim of supporting teachers without sufficient knowledge of the distance education platform, and holding special education meetings on the subject coincided with the behaviors expected from school principals with sustainable leadership characteristics. These supportive and collaborative behaviors of school principals are in line with those of Kantabutra and Saratun's (2013) research results, which revealed that the communication skills and cooperation approach of principals with sustainable leadership characteristics positively affect corporate culture. In addition, coordinating peer learning among teachers who are familiar with distance education tools and who are new to the process contributed to the quality of said process. In the quantitative phase carried out in order to expand these findings, it was concluded that school principals who effectively managed the process according to the opinions of the teachers had the above-mentioned characteristics.

In addition, it was observed at the qualitative stage that principals who were thought to not manage the process effectively were found to be oppressive, confrontational, and overly bureaucratic. At the same time, the ratio of principals who were considered to be ineffective was found to score poorly on the items related to sustainable leadership in the quantitative stage. Thereby, it was seen that the study returned consistent results.

The perceptions regarding factors such as maintaining the academic development of students, along with the professional development of teachers, and including teachers in the decision-making process in Cook's (2014) study, which examined how sustainable school leadership is perceived by teachers, can also be seen to support the results of this research.

In line with this, it can be said that teachers' motivation increases when they participate in decisions and when they feel that their personal development is supported. It can also be noted that school principals who show the characteristics of sustainable leadership support teachers both by ensuring their participation in the decision and by finding quick and effective solutions to their

problems. Herein, principals showed benevolent behavior on the basis of social justice, especially by finding effective solutions to the problems of teachers and students who lacked equipment. It was observed that these school principals met the computer needs of teachers and students who lacked equipment by taking initiative and thus played an effective role in maintaining the education of disadvantaged individuals. It was concluded that principals who display such behaviors are perceived to manage the process effectively by teachers.

The findings in Çaylak's (2018) study on sustainable leadership, which argued that school principals should be able to involve school members in decision-making processes, consider opinions and suggestions, create team spirit, be solution-oriented, and be able to take preemptive decisions in order to ensure administrative sustainability in their schools, also support the findings of this study.

This research is thought to have achieved its goal in terms of expanding its qualitative findings with quantitative findings and in terms of embodying the sustainable leadership principles put forward by Hargreaves and Fink (2003;2004;2011) in the literature. Since this study focused on an extraordinary period, it can serve as a model for similar countries in terms of the lessons to be learned and measures to be taken in the future.

In summary, the concept of sustainable leadership, which has emerged in the international literature in recent years and has become a current issue—especially in the field of education in Turkey—is considered to be important in terms of overcoming crises and ensuring the sustainability of the understanding of recovery. Within this context, the following can be suggested:

In order for the education system to be prepared for crises such as the COVID-19 pandemic, and to secure the successful management of the process, policy-makers should ensure that principals are selected from candidates with sustainable leadership qualities. It is suggested that executives should create exemplary educational environments (postgraduate education in the field of educational management, seminars on developing managerial competencies, etc.) so that principals can adopt these features and can gain awareness of them. Furthermore, researchers should make international comparisons in the context of sustainable leadership and should conduct research that includes all dimensions of sustainable leadership.

In addition, a study should be conducted focusing on the other dimensions of the sustainable leadership characteristics of school principals in the post-

recovery process. Such studies can be carried out with different school types and at different levels. Research can be conducted on the relationship between sustainable leadership and variables such as organizational citizenship, organizational trust, inertia, and cynicism.

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CHAPTER II

TEACHER TRAINING FOR DISTANCE EDUCATION: A CASE STUDY ON ELT FACULTY'S PERCEPTIONS IN THREE TURKISH UNIVERSITIES¹

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1. Introduction

The advent of Covid-19 around the globe forced critical changes in various aspects of our daily lives. The political, financial, social, psychological effects are not less significant than effects on health. Education is one area that has been seriously impacted and at times interrupted. The emergency reaction by the policy makers internationally was to switch to online teaching. The dire circumstances and the need to provide education was the primary concern. However, the majority of those expected to teach online were not trained for it. This results in a considerable gap between existing competences and requirements of effective online delivery.

The purpose of this research study was to explore the perceptions of English Language Teaching (ELT) faculty towards distance teaching of English. Firstly, the influence of previous experience with distance education on these attitudes was examined in this study. Another aspect that was explored was the training and support that the faculty deemed essential. The study was carried out prior to the Covid-19 pandemic; however, the findings and recommendations

¹ This chapter has been produced from the unpublished doctoral dissertation of the author.

could not be more relevant in order to bridge the competence gap in the tertiary education sector.

The chapter includes a brief review of the most relevant literature on the key concepts and theories, explanation of the methodology and findings of a study conducted among ELT faculty in three Turkish universities. The discussion part compares and contrasts the findings with the previous research and interprets the results of this current study in its context. Finally, the conclusion and recommendations section discusses the implications of this study for decision makers, practitioners, future researchers and other stakeholders.

2. Literature Review

The question of what constitutes distance education has been debated a lot among scholars of the field which is beyond the scope of our paper. However, for an essential understanding of distance education, some definitions and theories will be cited.

There are four distinct attributes of distance education in Encyclopaedia Britannica, namely being offered by an institution, separation of the learners and instructors, interactivity, and forming a learning group (Simonson, 2009).

An earlier theory by Michael Moore discusses the concept of “transactional distance” not as a concept of physical and spatial separation but rather as a distance of pedagogical nature (Moore, 1993, p. 20). According to Moore (1993), transactional distance applies to all educational environments where they may be close or wide gaps between the learners and the teacher. The main elements in this theory help bridge this gap or distance successfully: learner autonomy, instructional dialogue and programme structure. The term “dialogue” is preferred over interaction as one-way interaction from the teacher’s side towards the learners increases the gap. Moreover, rigid programme structures may not respond to individual or group needs and therefore, increase the transactional distance. Finally, learner autonomy where learners participate in decisions about their learning can reduce the transactional distance although various disciplines and learner groups may require different levels of autonomy.

In distance education another common point of interest is interaction. Although in a more general understanding than only distance education, Dewey (1938) is one of the pioneers who defined instructional interaction as

“transaction taking place between an individual and what, at the time, constitutes his environment” (p. 43). The transactional nature of interaction is significant as this was also discussed more recently by scholars in distance education fields. Moreover, the role of the environment is highlighted which includes time, place, participants and the media of communication.

Later, Moore (1989) classified interaction as learner-instructor, learner-content and learner-learner interaction.

In the learner-instructor interaction, Moore (1989) lists diverse roles such as motivating learners, evaluating learning, providing counsel and presenting learning materials. When interaction is in one direction (i.e. from the side of the instructor to the learner), there is more autonomy for learners as well as more responsibility. This type of interaction is more suitable for mature students who are well motivated. On the other hand, a two-way dialogue reduces the burden of such responsibility by providing individualised feedback and may prove to be more successful in less mature learner groups (e.g. undergraduate) or certain disciplines which require this type of interaction.

Learner content interaction is an intellectual transaction and changes a learner’s comprehension of the matter, his perspective to it or the underlying cognition about it (Moore, 1989, p. 2). Despite the suitable and pedagogically correct presentation of the study material by the teacher a learner still has a considerable level of interaction with the materials. In certain structured courses where self-study is expected learners can engage with the materials in their own pace and require less support from an instructor.

Earlier, there were four attributes of distance education identified by Simonson (2009) including learning group formation as one of these. In Moore’s theory of interaction types, learner-learner interaction takes place individually or in groups of learners in an environment where a teacher may or may not be synchronously present (Moore, 1989, p. 4). These interactions among learners can serve different purposes such as motivation, support, presentation, application and evaluation and different purposes can gain priority based on the group needs such as knowledge level or maturity.

In addition to Moore’s three interaction types in his model, Anderson (2008) argues the importance of teacher-teacher interaction. The effectiveness of support by practitioners using digital tools is widely recognised in the theory of Community of Practice (e.g. Wenger, White, & Smith, 2009). Anderson (2008) considers the focus of this interaction type as the willingness among

fellow teachers to share their experiences and solutions to challenges in a support environment. Certain blogs, fora, websites are developed and used for this purpose successfully. Moreover, where people are required to teach with varying schedules and in different locations face to face contact with colleagues may not be possible. Online collaboration tools are successfully used for distance education programmes in such contexts (see Coyle, 2005).

A final interaction type which needs mentioning is learner-interface interaction discussed by Ally (2008). This interaction is considered essential interaction with the content through visual and auditory senses as well as with other learners. For successful interaction in various devices and platforms, learners need to be competent in using them. This, in turn, affects cognitive engagement with the content as well as the learner group interaction and instructor-learner interaction. Although technical experts regularly experiment with different types of interfaces, devices, Learning Management Systems (LMS) and web browsers, faculty teaching at a distance may require to know how these may impact on students' learning or assessment. For example, taking a reading test on a computer or on a mobile phone may lead to very different experiences and results.

The theoretical background provided in this brief introduction is in no way exhaustive. However, it can provide the readers with some understanding of key concepts in the frame of this chapter and help put the research findings in this study into a meaningful context.

3. Methodology

Survey design is a common method among quantitative research designs. Griffie (2012) mentions several advantages of surveys when used with large samples such as possibility to generalise findings and availability of using them in sample groups to represent a research population. Moreover, they are easy to administer and data can be collected swiftly. It is widely used in studies on attitudes but there is some difficulty to establish causality in survey results.

3.1 Research Universe and Sample

This study conducted in Turkish universities had the aim of researching perceptions of English Language teaching faculty towards distance education. The research universe was this broad group. The focus on

distance teaching and learning of English required sampling of faculty that were teaching English using distance education medium. Universities that met this condition were sent initial emails to invite participation in the study. Logistical considerations led to the selection of three universities eventually. The selected universities were public universities funded by the government. One was in a major city in Turkey and the other two were in considerably smaller cities. Each university had an English Language Foundation Programme and a dedicated centre or school in charge of teaching it. They also provided English Language support to post-foundation students for two hours a week as a standard government requirement. It is this latter post-foundation English course that was mainly delivered using online medium. The faculty teaching in these programmes were invited to complete the questionnaire through the aid of administrators in each institution. Eventually 113 faculty took part in this study.

Respondents' demographic information of age, gender and qualifications is displayed in Table 1. The majority of participants were below the age of 40 (N=90, 80%) and had post-graduate qualifications (N=76, 67%). There was almost equal participation from both genders.

Table 1: Frequencies and Percentages of Age, Gender and Qualifications

Value	N	%
Age		
22-25	12	10.6
26-30	35	31
31-35	23	20.4
36-40	20	17.7
41-45	9	8
46-50	8	7.1
51+	6	5.3
Gender		
Male	56	49.6
Female	57	50.4

Qualifications

BA	36	31.9
MA	55	48.7
PhD	21	18.6

There were also questions about teaching experience both at the university level and otherwise (e.g. public schools and private language schools). The university affiliation was another demographic factor in the questionnaire. Table 2 displays the results of these demographic questions.

1-5 years of ELT experience (31 %) was the largest demographic group in this category followed by 6-10 and 11-15 years of ELT experience (both 23 %). The remaining 23% of the participants had 15+ years of experience in ELT. That means more than three quarters of the respondents (77 %) had ELT experience of 15 years or less.

The varying numbers of participants from different universities do not depend on each institutions size. Actually, this is because in a particular university online education provision was much more widespread whereas the other two were still implementing it partially. Because, the questions required engagement with online teaching of English, the number of eligible participants from the universities differed.

48 % of the participants had 1-5 years of university teaching experience. This percentage is higher than the ELT experience for the same number of years which means some of these faculty were teaching in other ELT contexts prior to their university appointments. Moreover, the great majority of the instructors (N=81, 72 %) have been teaching for less than 10 years at tertiary level.

Table 2: Frequencies and Percentages of University Membership, ELT Experience and University Experience

Value	N	%
University		
University 1	25	22.1
University 2	63	55.8
University 3	25	22.1

ELT Experience

1-5	35	31
6-10	26	23
11-15	26	23
16-20	14	12.4
21+	12	10.6

University Experience

1-5	54	47.8
6-10	27	23.9
11-15	14	12.4
16+	18	15.9

3.2 Data Collection

The data for the current study were gathered through a questionnaire. Firstly, common areas of interest were identified in the relevant research literature and items were developed according to this study's purpose. Faculty support and training activities were adapted from Savas (2006). This version of the questionnaire was checked by an expert in the field for construct validity. It was sent to a group of personal contacts of the researcher for piloting. Google Forms was used to distribute questionnaires and collate answers for analysis. The completion rate was low for the online questionnaire (11% of total 300 invitations). Therefore, a decision to distribute a print version was made for the main questionnaire later on.

Reliability analysis was carried out using Cronbach's Alpha test for the scale "Importance of Training Elements and Types". It included 13 items and produced a score of $\alpha = .85$. According to recommendations by Field (2013), the required value for this test is $\alpha = .70$ which was a condition that was met satisfactorily. After the pilot questionnaire, the questionnaire items were reviewed with an expert in ELT and statistics. Two items on synchronous and asynchronous teaching and learning experience were combined under online teaching and learning experience and 16 questions were reduced to 15.

Following the analysis of the pilot version, the main questionnaire was prepared with slight modifications as explained above. To increase completion ratio, print forms were used and personally distributed to faculty for completion during the researcher's visits to participating universities.

The questionnaire included demographic questions as well as items on using computers for personal and professional purposes, perceived value of distance education, importance of training elements and support/training types.

3.3 Ethical Considerations

The initial communication with the administrators in foreign language schools and centres proved to be useful in the institutional motivation to be part of the study. Moreover, written application was sent to each head or director for ethical approval. This included purpose of the study, a statement of confidentiality of data and the questionnaire's hardcopy.

Once permission was granted the researcher visited each participating university and with the help of the administrators contacted the faculty involved in teaching distance English courses. Institutional support was critical in this step for successful completion of the study by introducing the potential participants to the researcher.

The questionnaire included a statement of voluntary participation, anonymity and confidentiality of the data and the researcher's email contact. This was verbally repeated to each participant. This procedure increased the participation rate to 100% among those contacted.

3.4 Data Analysis

Upon completion, the questionnaires were personally collected by the researcher for data analysis. The data were coded and entered on Statistical Package for the Social Sciences (SPSS) software for analysis.

First statistical test was to check reliability of the scales in the questionnaire using the Cronbach's Alpha Reliability Test. Buyukozturk (2016) states that $\alpha = .70$ or higher indicates scale reliability.

Importance of Training Elements and Types was a scale that included 10 items and produced a score of $\alpha = .86$. This score was much higher than recommended level ($\alpha = .70$).

In order to decide on whether to use parametric tests or non-parametric equivalents for further analyses tests of normality were carried out. Larson-

Hall (2010) recommends using Shapiro-Wilk test for small samples where the null hypothesis assumes normal distribution of scores. $p \leq .05$ rejects the null hypothesis because data are not normally distributed.

For Q10, Q13 and Q14, Shapiro Wilk tests were used which produced $p \leq .001$ for each question. Therefore, the data for these questions were not normal and required use of non-parametric tests of Mann-Whitney U test and Kruskal-Wallis test to check group differences.

4. Findings

4.1 *Perceived Value of Distance Education*

Question 10 in the questionnaire asked participants to rate distance education's value that they perceived. The scores were according to a Likert scale where highest score was 5 and the lowest was 1. The overall mean question 10 was 3.30 where the mean score was 2.50.

In order to identify any differences among demographic groups of participants a particular item in the questionnaire was analysed using the non-parametric statistical tests of Kruskal-Wallis (for multiple groups) and Mann-Whitney U (for two groups). The demographic factors analysed included, gender, age, university affiliation, years of ELT experience, years of university experience, and previous online education experience. The test found no significant difference for university affiliation ($p = .64$), years of ELT experience ($p = .19$) or university experience ($p = .48$).

Gender was a factor that showed some statistical difference in terms of perceived value of distance education. A Mann-Whitney U test was utilised for comparison of male and female participant scores. Male participants' scores were significantly higher than the females ($U = 1238.50$, $p = .03$). Male participants averaged 3.52 ($n = 56$) whereas female participants averaged 3.09 ($n = 57$).

Another demographic factor that displayed statistical difference was age groups. In order to identify any differences among age groups in distance education's perceived value, a Kruskal-Wallis Test was carried out ($\chi^2(6, N = 113) = 13.17$, $p = .04$). SPSS model view has a pairwise comparison function to assist in conducting pairwise tests among a set with multiple items. The differences were found significant between age groups 31-35 and 26-30 ($p = .02$), 36-40 and 26-30 ($p = .03$), 36-40 and 46-50 ($p = .04$) and 36-40 and 41-45 ($p = .048$). The mean scores for different age groups are displayed in Table 3.

Table 3: Mean Scores for Value of Distance Education Scores

Age Group	N	Mean
22-25	12	3.25
26-30	35	2.91
31-35	23	3.65
36-40	20	3.85
41-45	9	3.00
46-50	8	2.88
51+	6	3.50

The final factor that displayed statistically significant difference in distance education perception was previous experience of online education. The questionnaire items asked for previous online education experience as a learner or as a teacher. These were merged into categories of None, Only Learner, Only Teacher and Both. Table 4 displays the distance education's perceived value scores for each category.

The Kruskal-Wallis test conducted among this group resulted in statistically significant difference, $\chi^2(3, N = 113) = 16.323, p = .001$. Pairwise comparisons resulted in significant differences between Both and Only Teacher Experience groups and Both and None groups. Both and Only Teacher Experience groups were compared through a non-parametric test. The result of the Mann-Whitney U test was a significant difference ($U = 340.50, p = .003$). The same test was repeated for groups with both experience and none that also differed at a significant level ($U = 222.50, p \leq .001$).

Table 4: Mean Scores for Distance Education Experience Groups

Experience Group	N	Mean
Both	26	4.04
Only Learner Experience	4	3.50
Only Teacher Experience	45	3.22
None	38	2.87

4.2 Important training and support elements

In the questionnaire two items were about the perceived importance of the elements of training and continuous support. In Question 13 there were three training elements including assessment, pedagogical issues and technical aspects rated on a 5-point Likert scale 5 being very important and 1 being not important at all. Technical Aspects scored highest among the three ($M = 4.30$) whereas Pedagogical Issues was second ($M = 4.04$) and Assessment was last ($M = 3.95$).

Question 14 on different types of training and support asked participants to score the perceived importance of each item on a 1-5 Likert scale. The focus in this question was more on the preferred delivery of training and support for online education. Both questions were analysed using descriptive statistics first. Figure 1 displays the mean scores for Questions 13 and 14.

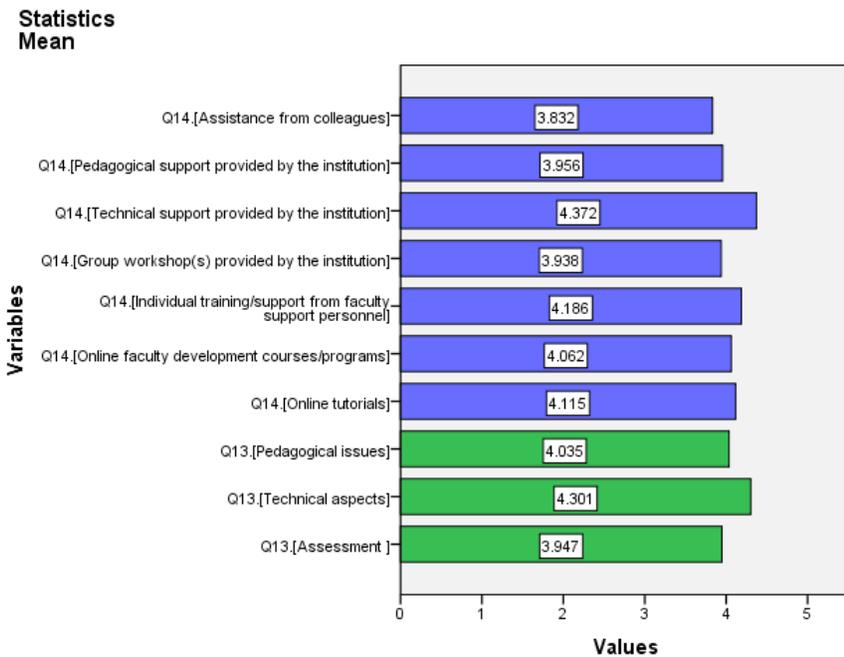


Figure 1: Graph for Q13 and Q14 mean scores.

According to the mean values displayed in Figure 1 technical support among seven types of support and training was considered the most important; followed by individual training and online tutorials. Interestingly, assistance from colleagues was considered the least important.

Question 13 training elements were further analysed using inferential statistics and non-parametric tests to identify any intergroup differences at a significant level for different demographic items. Technical aspects scores item did not result in any difference at statistically significant level.

Assessment showed significant difference only in age groups ($p = .033$). SPSS programme computed the pairwise comparisons which resulted in differences between age groups 22-25 and 46-50 ($p = .003$), 22-25 and 31-35 ($p = .01$), 22-25 and 36-40 ($p = .02$), 22-25 and 26-30 ($p = .01$), 51+ and 31-35 ($p = .051$) and 51+ and 46-50 ($p = .01$). The youngest group (22-25) and the oldest group (51+) received higher mean scores than other age groups. Table 5 displays the mean scores for different age groups.

Pedagogical Issues, on the other hand showed statistical difference in several demographic factor groups including gender, age groups, university affiliation, ELT experience and university experience. Gender groups were compared according to Mann-Whitney U tests conducted and the other groups with multiple subgroups were tested through the use of Kruskal Wallis tests as well as pairwise comparisons.

Table 5: Mean Scores for Assessment and Pedagogical Issues for Age Groups

Agegroup	N	Mean	Mean
22-25	12	4.67	4.75
26-30	35	3.86	4.20
31-35	23	3.78	3.78
36-40	20	3.95	3.85
41-45	9	3.78	3.44
46-50	8	3.38	3.88
51+	6	4.67	4.33

There were significant differences between age groups in scores for Pedagogical Issues ($p = .02$). The youngest and the oldest groups had the highest mean

scores (See Table 5). The pairwise comparisons among age groups resulted in statistically significant differences between 22-25 and 31-35 ($p = .006$); 22-25 and 36-40 ($p = .006$); 22-25 and 41-45 ($p = .003$); 22-25 and 46-50 ($p = .023$) and 26-30 and 41-45 ($p = .04$).

For the Pedagogical Issues category, gender groups also displayed difference in the results of the Mann Whitney U test ($U = 1206$, $p = .02$) with 3.84 for males and 4.23 for females.

ELT experience groups also displayed a significant difference in Pedagogical Issues in Kruskal-Wallis test results ($p = .009$). Pairwise comparisons in the model view displayed that groups of 1-5 years and 11-15 years ($p = .01$); 1-5 years and 16-20 years ($p = .001$) and 16-20 years and 6-10 years ($p = .04$) had differences at a significant level. 1-5-year group had the highest mean scores whereas 16-20-year group scored the lowest (see Table 6).

Similarly, university experience groups were compared through a Kruskal-Wallis test and displayed difference ($p = .013$). Pairwise comparisons among university experience groups resulted in significant differences between 6-10 years and 1-5 years ($U = 481$, $p = .008$) and 16+ years and 1-5 years ($U = 306.50$, $p = .01$). Table 6 displays mean scores for demographic groups of ELT experience and University experience in years.

Table 6: Mean Scores for Pedagogical issues with ELT Experience and University Experience

ELTExpGroup	N	Mean	UniExpGroup	N	Mean
1-5	35	4.40	1-5	54	4.28
6-10	26	4.08	6-10	27	3.70
11-15	26	3.81	11-15	14	4.21
16-20	14	3.36	16+	18	3.67
21+	12	4.17			

University affiliation also affected perceived importance of pedagogical issues in training elements ($p = .04$). University 1 and University 3 displayed significant difference confirmed by the Mann-Whitney U test results ($U = 198.50$, $p = .02$).

Participants from University 3 had a mean score of 4.32 whereas University 1 participants averaged 3.64. This is probably related to the faculty's experiences with how online learning and teaching were managed in their particular contexts.

5. Discussion

5.1 *Perceived Value of Distance Education*

Responses by the sample group displayed a mean beyond an average score and demonstrated a positive perception towards the value of distance education. In particular males scored higher than females and 31-40-year-olds higher than other age groups. Although age groups show a statistical difference, this does not necessarily establish causality between age and attitude towards distance education. A common assumption would be that younger faculty who have more exposure to online environments and related technologies possess generally more positive perceptions towards distance education. However, this assumption was not confirmed by the current research. Another dimension that can help us interpret these findings is that there is a higher percentage of online learner experience in these age groups (i.e. 31-35 and 36-40) than others. This actually provides a more plausible explanation to the statistical difference of these two age groups from the others.

Another finding to be highlighted is that participants with previous online education experience as learners or both learners and teachers scored significantly higher than those with no previous online education experience or only those who had experience only as teachers. Previous research (Holmes, Signer, and MacLeod, 2010; Arsht, 2011; Adnan, Kalelioglu and Gulbahar, 2017; Adnan and Boz, 2015) also found that online education experience as a learner made a positive contribution to how respondents perceived the value of distance education. Although this is well established in research, in the planning stage for online teacher training sessions in all three universities this was not considered as a significant factor. The researcher's personal communication with the administrators showed that training was delivered in face to face environments. That was a preferred method of delivery probably because respondents were more familiar and comfortable with in-class interaction as well as other logistical considerations for the training. However, for the long-term effectiveness of online teaching the delivery method can be reviewed with reference to evidence from recent and relevant research.

5.2 *Training and Support Elements*

The importance of training and continuous support in professional development for online teaching was also confirmed by previous literature (see Arsht, 2011; Haggerty, 2015).

The findings section explained that Technical Aspects among the three elements of training scored the highest. Actually, the training sessions were focused on technical aspects of course delivery which may have shaped the attitudes towards this aspect of training needs similar to a self-fulfilling prophecy. This is probably (mis)guided by the managerial decisions on what is essential in professional development activities.

In the Leigh University in the US, Bishop and White (2007) conducted the “Clipper Project” whose findings are relevant to training elements and support. Firstly, pedagogical training is necessary for a non-disruptive and effective transition to online medium from a traditional physical classroom environment. The technical training can make attendees able to use those tools more efficiently but they do not translate into desired learning outcomes automatically without sufficient understanding of this new medium of education with all its opportunities and challenges (Bishop & White, 2007).

This particular study found some demographic groups, though not the majority, perceived pedagogical issues to be more important than other groups. For example, female participants, younger and older age groups (22-25 and 51+) and those with less experience (1-5 years in ELT and University Experience groups) considered pedagogy as an essential training element to prepare for online education.

After an initial training session to prepare teaching in distance education, continuous support takes priority as new or experienced staff may need support in various times and ways. In the questionnaire responses the most preferred support and training types were institutional support on technical issues, assistance from support staff offered individually and tutorials conducted online. Support from colleagues was rated the lowest among all types of training and support. During the researcher’s visit to the participating institutions it was observed that support from colleagues was widely available. Despite its availability the low scores on this particular item may have been due to colleagues’ real or perceived lack of expertise. However, in the category of Assistance from colleagues the average score of female participants were higher than the males at a significant level.

In contrast to the responses from participants, Stickler and Hampel (2007) emphasize the importance of continuous support for online instructors especially in the form of a “community of practitioners” where there are sufficient number of online teachers making mentoring for pedagogical as well as technical matters (p. 83).

The importance of forming a support group made up of colleagues is also mentioned as the second major finding by Bishop and White (2007) where they propose that in order to change the emphasis from teaching to learning in online instruction two components are crucial; support from administrators and colleagues’ collaboration with each other.

Although it was not covered in the questionnaire part of the study, the researcher found through initial discussions with the administrators that the training provided was usually a one-off session that focussed on technical aspects of the online delivery platform. The trainings were delivered by technical staff from an Information Technology (IT) background with probably no previous experience with language teaching. The planning of the training did not involve the participants in needs analysis or delivery.

On the other hand, Walters, Grover, Turner and Alexander (2017) propose that adopting a bottom-up method to plan for professional development activities through participants’ needs analysis is more effective than a top-down approach based on what planners determine. The managers need to understand uniqueness of each context and aim to deliver a diversified training based on the needs of faculty rather than a generic training approach without any differentiation among different disciplines. Moreover, it is argued in relevant literature (see Adnan et al., 2017; Chu, 2013) that motivation and autonomy can develop significantly when faculty participate in the planning process of their professional development activities for online education.

Looking back to the perceived importance of distance education by the faculty, problems such as lack of sufficient training and support and lack of involvement in training except as passive recipients may have affected the attitudes of faculty towards this new medium.

6. Conclusion and Recommendations

The results of this study point out that inclusive training is an important factor in the acceptance of any new idea among teaching faculty. When English language

teaching is considered particularly, the motivation of language learners can be sustained over a considerably long period only by teachers who already believe in the effectiveness of the medium they are teaching in and feel confident using it. Westberry, McNaughton, Billot and Gaeta (2014) state that positive outcomes of technological initiatives depend on clearly communicating and supporting teachers through their transition. On the importance of training for online teaching and continuous support, Adnan et al. (2017) state that the quality of online education (both learning and teaching) depends on the support of organising systematic initiatives to develop faculty on these matters.

The findings of this survey study produce four concrete recommendations for managers and administrators in charge of continuous professional development activities or support for English Language teaching faculty:

Involve the (future) practitioners in the planning stage: In order to increase ownership of the training and to identify specific needs of the target group, include a representative group of online teaching faculty. This bottom-up approach to training organisation can increase effectiveness significantly.

Include online pedagogy(ies) as part of the training: Although technical training is essential to use the tools and access delivery platforms, it is similarly necessary to learn how to use those tools to achieve learning outcomes. Do not assume that previous teacher training and experience will automatically prepare faculty for online teaching. Pedagogical training elements can be delivered by experienced practitioners from the institute or from outside if necessary.

Run training sessions online: The faculty who attend Continuous Professional Development (CPD) activities through distance education develop a significantly more positive attitude towards teaching at a distance than those who have no online learner experience according to various studies in this field (Adnan et al., 2017; Holmes et al., 2010; Chang, Shen and Liu, 2014).

Provide continuous support: Building skills for effective online teaching is a gradual process. Support from colleagues in the form of regular workshops or a more informal and individual format can really benefit those who face issues from time to time. Feeling supported in a community of practice will diminish negative attitudes and increase faculty motivation to adopt this new medium more easily.

These recommendations can also be implemented by teaching faculty as they can organise themselves into a Community of Practice and form a network of necessary training and support. In previous literature this has been included as a practical way of providing effective support without the need for the costly employment of a specialist.

There was a small number of faculty from three public universities in Turkey who participated in this study. Future researchers may want to apply it in different contexts internationally and compare the findings with the current study. Moreover, a training programme can be developed, implemented and its effects can be evaluated for a more comprehensive and practical study in the future.

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CHAPTER III

UNLOCKING ALL THE DOORS FOR ALL CHILDEN: CONTRIBUTIONS OF OUTDOOR PLAYS TO THE DEVELOPMENTAL DOMAINS OF PRESCHOOLERS REGARDING PRESERVICE TEACHERS' VIEWS

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Introduction

Infants take the step to plays when their parents attract their attention with various plays as soon as they come to the world. They learn their plays from their parents or the environment while growing up. They also sometimes create plays themselves and include others into them. Everybody, children or adults, is a part of plays. The play, which has always an essential place in the lives of children and parents, is transferred from one culture to another through their names, forms, tools, and how to play are different. Plays have contained the effects of their era within both themselves and toys. The oldest known toy is a rock. During the agricultural era, there were toys figured in animal shapes. Machine-made toys were common in the following years. In the digital era, plays and toys have been reflecting the technological properties

of the era together with technological devices (Artar, Onur, and Celen, 2002; Gozum and Kandir, 2020).

Children's games have acquired a virtual dimension with the internet coming into our lives meanwhile plays and tools of children born in the digital era are composed of electronic devices. Children have difficulty with recognizing the real and the virtual situations (Yigit Acikgoz and Yalman, 2018). This kind of plays entertains children with its easy accessibility. Besides, they are applications amazing the children with their graphic design including the highest-level competitiveness and impressive visualization. Preschool children reach to the digital devices and play via the adults around them. They are sometimes used for the reasons such as distracting children's attention, silencing them, or keeping them away (Toran, Ulusoy, Aydin, Deveci, and Akbulut, 2016).

Effects of outdoor plays on children's development domains have become more important after digital plays came out. Therefore, this causes people to debate that this change affects children's cognitive, social, psychomotor, emotional, and language development domains most. Children acquire experience, improve themselves, make friends and get ready for real life by learning to accommodate to social order throughout plays. Plays are the most essential need for the development of children, preceded by love (Yorukoglu, 2002). It is possible to say that team plays outdoor have important effects on the education and development of children (Kabadayi, 2005). Plays are a means for children to find themselves and reveal power and skills hidden inside in an easy way (Yalcinkaya, 2002). One of the basic functions of plays is to make children ready for education. Children get the knowledge of being patient, completing tasks, and being healthy and strong physically via plays (Akandere, 2003).

Children have the skills to play everywhere. However, outdoor is the unique and broadest environment in which they are aware of their power and can be free. It presents children with many opportunities for play tools (Sanoff, 1995; as cited in; Kalburan, 2014). Children spend most of their time at school and spend the rest at home because of the social life conditions changing in years. The places where children play outdoor games out of school have become restricted more by rapid urbanization. Children are not capable to play outside without their parents because of safety concerns. This situation directs them to houses and digital plays more by limiting their independence and places for games. Today, their parents plan outdoor plays for children or offer them limited outdoor activity.

Outdoor plays include plays standing out psychomotor developments and other development domains with different amounts of effect, such as severing, tying, untying, kneading, and keeping. Besides, they include physical games such as tagging, skipping rope, grabbing handkerchief, hide-and-seek, gym, and riding bike (Aral and Durualp, 2018). It is essential for children's development that the playgrounds consist of natural environments, such as soil, water, stones, plants, and animals (Turgut and Yilmaz, 2010). Also, children acquire various sense experience and their creativity improves while they play with soil, water, and mud (Kalburan, 2014). You can play many imaginary and creative outdoor games. Children sometimes play in harmony with their friends, but sometimes they learn how to cope with the emotional situations of conflicts and solutions throughout these games. Interaction with friends contributes to their socialization and development of language skills. There are several instructive elements in plays. The play itself becomes a school in terms of children's friends and play tools (Kabadayi, 2016).

Outdoor plays positively affect all development domains. The most significant effect of outdoor plays is to provide children socialization with their peers while building self-respect and shaping their personality. However, digital game addiction has sides affecting all development domains in a negative way such as loneliness, low self-respect, mental problems, lack of social skills, and health problems derived from inactivity (Morahan-Martin, 2005; as cited in; Mustafaoğlu, Zirek, Yasaci, Ozdincer, 2018). Children are vital for the future. They need to be saved from the digital world where they are getting away from nature and too much individualized. They also need spaces where they can get rid of their energy and feel psychological relief, and be provided more social identities they can socialize and learn to share (Kabadayi, 2016).

This study is conducted to investigate contributions of the outdoor plays to the development domains of the children who are born to a digital world regarding teacher candidates' opinions.

METHODOLOGY

Research Method

98 teacher candidates who study at Preschool Teaching Department at universities have been asked the question "*How do you think outdoor plays affect development domains of children?*" and they are asked to write their

observations and opinions. The answers from 98 teacher candidates were evaluated with the document analysis method.

The document analysis method is a systematic method that consists of detailed examination, evaluation, and categorization of documents that create content. Document analysis is one of the poorly known qualitative research methods. It does not cover just the written document, as it can be understood from only the meaning of the word. It also covers the evidence that may be data for the researcher such as in diaries, memories, interviews, written texts, notes, pictures, guides, newspapers, videos, messages, reports, etc. The information obtained from these data provides the researcher to evaluate, interpret, and develop experimental information as a result of a detailed examination of the subject (Labuschagne, 2003; Corbin & Strauss, 2008; as cited in; Kiral, 2020). It is a sample study that examines student diaries, focus group interviews, and classroom observation records by subjecting them to document analysis as the qualitative data collection tools of the quantitative and qualitative mixed study that Yapicioglu and Kaptan conducted in 2018.

Working Groups

The universe of the research consists of the students who study at the Department of Preschool Teaching at Konya Necmettin Erbakan University. The sample of the research consists of 98 teacher candidates, who study at Konya Necmettin Erbakan University and have already attended the school internship, and have the opportunity to observe the children one-on-one.

Data Analysis

It is hard to present the data statistically in qualitative research. Many factors emerge during in-depth studies. For this reason, the data are handled and analyzed as multidimensional. The answers obtained in this study have been categorized according to which development domain they appeal to, based on the frequent repetitions, the words emphasized by the participants, and the sentences they are contained. Besides, since more than one word is used to address the intended development domain, the development domains are divided into sub-themes. Based on the frequency values, the main theme has been determined as the most affected domain of development and the sub-theme that is referred to most in the main theme has been revealed in percentages.

FINDINGS

Regarding the interviews with teacher candidates, their opinions about the outdoor games have been evaluated according to development domains. In the study, with 98 teacher candidates participants, it is seen that teacher candidates expressed their opinions in long paragraphs. While a prospective teacher only referred to one development domain, some of them referred to more than one development domain. The sentences of teacher candidates about the outdoor games were examined and classified under the main theme according to which development domain they addressed. Afterward, the development domains were divided into three sub-themes within themselves. These sub-themes were defined as sentences emphasizing the wanted development domain. Different sub-themes addressing the same main theme were also founded in the sentences in which a prospective teacher expressed her ideas. These were calculated separately while being evaluated. The values were rounded up to approximate while calculating the percentage distribution. The frequency and percentage (%) Distribution of the study is below according to the development domains

Table 1: Frequency and percentage distribution of outdoor plays according to the development domains

Development Domains	Frequency (f)	%
Cognitive Development	33	27,73
Social Development	31	26,05
Psychomotor Development	26	21,85
Emotional Development	21	17,65
Language Development	8	6,72
Total	119	100 %

Following the data obtained from teacher candidates, it is observed that they stated the sentences addressing the cognitive domain most with the rate of 27, 73 %. Piaget explains the effect of the plays on the cognitive development of children with two principles; one of them is assimilation; internalization of what they learn from the environment and the other is accommodation; adaptation to the environment with their behavior (Ozdogan, 2004). It is possible to reach this result when you consider children's environment shrinking day by day. It is thought that the most affected second domain is the social development of children with 26.05% among the digital games directing children to individualization from the crowded group teams of outdoor plays. In Taylı's (2007) social play preferences

study with the preschool children, it is determined that all children prefer to play together, in which they establish social relationships, instead of individual plays. When you look at the table of the effects of plays on the development domains, it is seen that the teacher candidates made sentences affecting the psychomotor development domain in the third place with 21.85%. Bekmezci and Ozkan (2015) say that balance games affecting big and small muscle development, working with balls, the speed with moving exercises, being ready for reaction, attention, coordination, and flexibility make the child ready for the environment through games. The emotional development domain is the development domain in the fourth place mentioned by teacher candidates with a rate of 17, 65 %. Children learn and reveal many emotional reactions and they learn how to control them during plays (Kocyigit, Tugluk, and Kok; 2007). The development domain on the fifth place mentioned by a few prospective teachers and thought affecting is language development with 6,72 %. It has great importance for language development that children interact with each other and ask and answer questions together with the rhymes during the group plays (Bekmezci and Ozkan, 2015).

1. Cognitive (Mental) Development Domain

In the examination, cognitive development is the most mentioned domain (27,73 %) of the development domain by the teacher candidates. It was determined that the teacher candidates used most of the sentences in the sub-themes appealing to the cognitive domain. The words “*Creating Awareness (57,58 %)*”, “*Experiencing (27,27 %)*” and “*Exploring (15,15 %)*” were defined as sub-themes, among the words expressing cognitive development domain. It is seen that the sentences including the word “creating awareness” are mentioned most among the sub-themes. It is observed that a person included more than one sub-theme in the sentences. Below are the frequency and percentage distribution of sub-themes in the table.

Table 3: The frequency and percentage distribution of the sub-themes of the cognitive development domain (27,73 %)

Cognitive Development Domain	Frequency (f)	%
Creating Awareness	19	57,58
Experiencing	9	27,27
Exploring	5	15,15
Total	33	100 %

1.1 *Creating Awareness*

Based on the data obtained from the answers of participants, the sub-theme creating awareness, one of the words addressing cognitive development and repeated frequently, is the sub-theme of cognitive development referred to most with 57,58 %. Below there are some sentences that address the sub-theme creating awareness of the cognitive development domain quoted from the participants.

- *The child playing street games outside chooses the game by oneself and s/he is the hero of the game. Children learn moral values like good and bad. They solve the problems in the games. Besides, outdoor games improve children's creativity, they provide children to learn by doing and support their peer relationship. The first things that come to mind as street/field games are games such as hide and seek, blind man's bluff, dodge ball, stopping, grab handkerchief, puss-in-the corner. These both improve the space perception of children and provide to create body image. Some games played with a rope or ball teach the concepts of timing, quick thinking, quick decision making and applying, sense of rhythm and direction during plays. The child who plays the game is a candidate to put up with the results of his-her behavior, develop sometimes competition and sometimes empathy, gain concentration, and become more careful. All of these will surely attract the child more.*

1.2 *Experiencing*

The sub-theme experiencing, among the words and sentences addressing cognitive development and repeated often, is the sub-theme referred second with 27,27%. Below are some sentences that address the sub-theme experiencing the cognitive development domain quoted from the participants.

- *Games played with friends outside are preparations for real life. Streets and empty fields are rich playgrounds helping children acquire positive experiences in the natural environment by moving free even though they are not attractive for adults. Children learn by gaining experience via outdoor plays. The children's fondness for the environment increases when they experience themselves that environment has endless beauties and possibilities and has always aside to explore.*

1.3 Exploring

The sub-theme exploring, addressing cognitive development and repeated often, is the third sub-theme with 15,15 %. Below there are some sentences that address the sub-theme exploring the cognitive development domain quoted from the participants.

- *Outdoor plays provide children the possibility to explore themselves and their environment while supporting all the development domains of children. Outdoor plays allow children to learn the life themselves by living and exploring. Thus, the children acquire some skills such as cooperation, helping each other, problem solving, and creative thinking. Therefore, educators and parents must encourage children to play in open spaces; they must explore these spaces, and play various games in these spaces.*

2. Social Development Domain

In the examination, the main theme referred to second among the development domain is the social development domain. It is determined that 26,05 % of teacher candidates used most of the sentences in the sub-themes addressing social development. Among the words expressing social development domain, the words “*Collaboration*” (45,16 %), “*Socialization* (35,48 %”, and “*Sharing* (19,35 %)” are defined as sub-themes. It is seen that the sentences including the word “collaboration” are mentioned most among the sub-themes. It is observed that a person included more than one sub-theme in the sentences. Below are the frequency and percentage distribution of sub-themes in the table.

Table 4: The frequency and percentage distribution of the sub-themes of the social development domain (26,05 %)

Social Development Domain	Frequency (f)	%
Collaboration	14	45,16
Socialization	11	35,48
Sharing	6	19,35
Total	31	100 %

2.1 Collaboration

The sub-theme “Collaboration”, one of the sub-theme of social development domain is the sub-theme referred to most with 45,16 %. Below are some

sentences that address the sub-theme collaboration of the social development domain quoted from the participants.

- *People are alone; they look for their fellows even though they see the digital plays as their friends. In other words, a virtual child is grown up in the virtual platforms without the environment. Outdoor plays give the child the happiness of acting with a group and succeeding in something in collaboration since they are played together. None of the devices, tools, etc. in digital addiction can make children live the connection with the environment and the lives on the streets.*

2.2 Socialization

The sub-theme socialization, one of the sub-theme of social development domain is the sub-theme referred second with 35,48 %. Below are some sentences that address the sub-theme socialization of the social development domain quoted from the participants.

- *The soil and water are enough for a flower to grow up. The situation of the flower plucked from the soil is similar to the situation of the children that are exposed to digital plays. It will dry in time after a while even though it gains appreciation by attracting everybody's attention. Traditional games enable children to improve in physical, mental, and social aspects as if the flower takes the minerals from the soil. Outside plays are significant for especially social and motor development in addition to supporting all the development domains. Children may have spent the time with technological devices and missed the critical periods when they need to socialize, explore nature, and lay the foundations to make sense for life.*

2.3 Sharing

The sub-theme sharing, one of the sub-theme of the social development domain is the sub-theme referred to least with 19,35 %. Below there are some sentences that address the sub-theme sharing of the social development domain quoted from the participants

- *Street plays not only cover the physical development but also children learn to share, helping each other, and using their energy in a correct way with these plays. Children meet this need on street with their friends best, not at home with digital devices.*

3. Psychomotor Development Domain

In the examination, the psychomotor development domain is the main theme referred to third among the development domains. It is determined that 21,85 % of teacher candidates used most of the sentences in the sub-themes appealing psychomotor development domain. Among the words expressing psychomotor domain, the words “*Relaxing*” (50 %), “*Activity* (26,92 %)”, and “*Physical Endurance* (23,02 %)” are defined as sub-themes. It is seen that the sentences explaining the word “Relaxing” are mentioned most among the sub-themes. It is observed that a person included more than one sub-theme in the sentences. Below are the frequency and percentage distribution of sub-themes in the table.

Table 6: The frequency and percentage distribution of the sub-themes of psycho-motor development domain (21,85 %)

Psychomotor Development Domain	Frequency (f)	%
Relaxing	13	50
Activity	7	26,92
Physical Endurance	6	23,08
Total	26	100 %

3.1 *Relaxing*

The sub-theme “Relaxing”, among the words and sentences addressing psychomotor development and repeated often, are the sub-theme referred to most with 50%. Below are some sentences that address the “Relaxing” sub-theme of the psychomotor development domain quoted from the participants.

- *The children who enjoy running outside, spending time with friends, and find themselves in different fields, take up hobbies will get closer to these domains more. In this way, children will relax by using their energy outside, they won't have time for the digital plays or they will recognize that digital plays are not as entertaining as outdoor plays and they don't want to play.*

3.2 *Activity*

The sub-theme activity, among the words and sentences addressing psychomotor development and repeated often, is the sub-theme referred second with 26,92 %. Below are some sentences that address the sub-theme activity of the psychomotor development domain quoted from the participants.

- *The children jump, hop, bounce, run while playing street games outside. They get rid of all their negative energy with these actions that develop them in the psychomotor domain. Meanwhile, they feel the air containing plenty of oxygen. They go back home tired after the dynamic activities that they play in clean-air. Also, the children who play with the interaction of their friends and play without any action limits do not enjoy digital games. In brief, the children who come back home tired from the streets and enjoy the outdoor plays do not satisfy with digital plays.*

3.3 *Physical Endurance*

The sub-theme physical endurance, among the words and sentences addressing psychomotor development and repeated often, is the sub-theme referred to least with 23,08 %. Below are some sentences that address the sub-theme physical endurance of the psychomotor development domain quoted from the participants.

- *Plays on the street affect directly the children's psychomotor muscle skills, social development by increasing their physical strength. On the other hand, digital addiction affects negatively physical development, like sitting disorder. Besides, the children playing outdoor show more and healthier development than the children playing digital games in terms of physical development, emotional development, and cognitive development.*

4. Emotional Development Domain

In the examination, the main theme referred fourth among the development domains is the emotional development domain. It is determined that 17,65 % of teacher candidates used most of the sentences in the sub-themes addressing the emotional domain. Among the words expressing emotional development domain, the words “*Psychological Relief (52,38 %)*”, “*Feeling- Enjoying (42,86%)*”, and “*Introversion (4,76 %)*” are defined as sub-themes. It is seen that the sentences explaining the word “relief” are mentioned most among the sub-themes. It is observed that a person included more than one sub-theme in the sentences. Below are the frequency and percentage distribution of sub-themes in the table.

Table 5: The frequency and percentage distribution of the sub-themes of the emotional development domain (17,65 %)

Emotional Development Domain	Frequency (f)	%
Psychological Relief	11	52,38
Feeling-Enjoying	9	42,86
Introversion	1	4,76
Total	21	100 %

4.1 Psychological Relief

The sub-theme psychological relief, among the words and sentences addressing emotional development and repeated often, is the sub-theme referred to most with % 52,38. Below are some sentences that address the psychological relief of the emotional development domain quoted from the participants.

- *The chicken walking freely outside finds its food and drink. It doesn't feel stressed because it is free outside and thanks to this, its egg productivity increases. Its eggs are qualified and delicious. The children who play outside will be independent and efficient just like the chicken. They won't feel stressed and they will be healthy and efficient in all aspects. They will be happy. The chickens raised indoors are unhealthy and inefficient. The food they produce is not demanded as much as the others. They always live their life in need of somebody. They are stressed and unhappy. The children who play digital games resemble these chickens raised indoors. These children live their lives addicted to digital game tools like tablets, phones, computers, etc. Their adaptation to the environment and people becomes very difficult when they are removed from this environment. They cannot be productive and efficient. They don't have healthy lives. They are unaware of the nature and environment. They are unhappy.*

4.2 Feeling – Enjoying

The words “feeling” and “enjoying”, addressing emotional development main theme and repeated often, are used together because they underline the same things. The sub-theme Feeling-Enjoying is the sub-theme referred second with 42,86% in the emotional development domain. Below are some sentences that

address the sub-theme feeling-enjoying of the emotional development domain quoted from the participants.

- *Children will start to enjoy the outdoor plays when they feel emotions like independence, love, friendship thanks to the outdoor plays. They need fewer digital games when they play outside and get rid of their energy and feel happier. Their self-confidence will increase and satisfy more when they win the game played outside with friends. Children will do what they want freedom when they go outside. They feel more comfortable with soil and nature in this free environment.*

4.3 *Introversion*

The sub-theme introversion, addressing emotional development and repeated often, is the sub-theme referred very little with 4,76 %. Below are some sentences that address the “Introversion” sub-theme of the emotional development domain quoted from the participants.

- *Children who spend a long time indoors with TV, phones, and computers cannot release their energy and relax. This may turn them into nervous and introverted individuals with psychological problems. The children who play outdoor games are healthier in both physical and mental aspects. Meanwhile, they get rid of introversion by spending time with their peers and become happier. They will love the outdoor plays more when they realize these situations or we make them realize it.*

5. Language Development Domain

In the examination, the main theme referred to at last rank among the development domain is the language development domain. It is determined that 6,72 % of teacher candidates used most of the sentences in the sub-themes addressing the language development domain. Among the words expressing language development domain, the words “*Communication (62,5 %)*”, “*Interaction (25 %)*” and “*Maintaining Social Distance (12,5 %)*” are defined as sub-themes. It is seen that the sentences including the word “Communication” are mentioned most among the sub-themes. It is observed that a person included more than one sub-theme in the sentences. Below are the frequency and percentage distribution of sub-themes in the table.

Table 7: The frequency and percentage distribution of the sub-themes of language development domain (6,72 %)

Language Development Domain	Frequency (f)	%
Communication	5	62,5
Inteaction	2	25
Maintaining Social Distance	1	12,5
Total	8	100 %

5.1 *Communication*

The sub-theme communication, among the words and sentences addressing language development main theme and repeated often, is the sub-theme referred to most with 62,5 %. Below are some sentences that address the sub-theme communication of the language development domain quoted from the participants.

- *Children wander the world and their environment much in this period. They ask about everything because they are little scientists who wonder, question, and search. Early childhood has a great role in the child's acquiring positive attitude and behavior regarding the environment. Digital games will cause problems with parents and friends because the children playing digital games have communication disorders with their parents and friends. Whereas, the children playing on the field will have stronger communication with their parents and friends; and they will learn to act in cooperation.*

5.2 *Interaction*

The sub-theme interaction, among the words and sentences addressing language development main theme and repeated often, is the sub-theme referred second with 25 %. Below are some sentences that address the sub-theme interaction of the language development domain quoted from the participants.

- *Watson says that he can give the children the education he wants and he can create doctors, engineers, and even thieves out of them. This view may not be widely accepted according to the contemporary understanding but we, as teacher candidates and parents, should be very critical about raising children and help children acquire competencies of discovering, interacting with the environment, and solving their problems. Therefore, raising children who play games outside and interact with real life is one*

of the most important parts of this process. The children playing outside/ in the field will be together with different people. They will keep up with the social order by interacting with them. When they are included in a game or they include others in their game, they interact with their friends and their language skills will develop as a result of this interaction. They form their personality development as a result of interaction with different people.

5.3 Maintaining Social Distance

The sub-theme maintaining social distance, among the words and sentences addressing language development main theme and repeated often, is the sub-theme referred least with 12,5 %. Below there are some sentences that address the sub-theme maintaining the social distance of the language development domain quoted from the participants.

- *The children who play outside/in the field mostly spend time with their peers together. They learn and enjoy waiting their turn to speak with each other, listening to others, creating and obeying the rules in the games together, sharing, and friendship.*

CONCLUSION

As a result of our study, it is seen that teacher candidates think the most affected domain is the cognitive (mental) development domain (27,73 %) according to the data obtained from them. The second is the social development domain (26,05 %), the third is the psychomotor development domain (21,85 %). After that, the emotional development domain (17,65 %) comes, and the language development domain (6,72%) is the one referred by few people.

The American Academy of Pediatrics reports that digital content has negative impacts to a large extent, by drawing attention to the lack of evidence that supports the educational and development impacts of digital content. They also point out that it is important to stay away from digital devices for the potential health and development of children younger than two years old (Brown, 2011). Many contents are supporting cognitive development with several play alternatives and natural and unlimited material in the outdoor plays in comparison with digital plays. (McCans, 2004; as cited in; Kalburan, 2014). Plays outside bring children conscience of controlling their body and shaping

their behavior by offering them limitless freedom to move. In the research of Arslan and Dilci (2017) on how traditional plays affect the development of children; it has been determined that they contribute positively to physical skills development, making effective social relationships, emotional and cognitive development, and especially character development.

Parents usually prefer to take their children out at weekends because they do not this on weekdays due to the changing working conditions even if they are conscious about playing outside. Children take the advantage of their parents' fatigue and prefer digital plays on weekdays. In a study conducted in America, it is stated that half of the parents cannot take their preschool children out daily. Meanwhile, it is found that half of the children who study at a school are not allowed to play outside (Tandon, Zhou, and Chistakis, 2012; as cited in; Kalburan, 2014).

Preschool children spend most of their time on weekdays at educational institutions due to the working conditions of their parents. Play-based learning completely has started with the change in preschool education programs. While the educators creating the plans, it is aimed that children use the school garden to the largest extent, and meanwhile, the development of the children is supported by planning play-based activities (MEB, 2013).

Suggestions

- First, parents should prefer outdoor play activities as much as possible instead of using digital devices because the children who are in the period of early childhood take them as role models.
- While planning the cities, schools, shopping malls, touristic resorts and apartment sites playgrounds that are safe, green, and suitable for children's necessities should be created without neglecting the children who will shape the future of the society.
- Children should be provided more outdoor plays by directing them to the activities like scouting, in which they are in nature.
- Children should be kept away from the technological devices as much as possible at home; they should be offered alternatives by which they can use their all of their domains effectively.
- More outdoor plays and activities should be included in the school activities integrated to education plans especially in the early childhood period.

- Various projects should be undertaken to ensure the transfer of our traditional games, which are about to be forgotten, and to direct children to traditional outdoor plays as well.
- Municipalities and city planners should equip huge parks with high quality play tools and instruments the children can play and express themselves via various outdoor play activities in open air.
- Parents should guide their children to involve outdoor plays to contribute all their development domains rather than only cognitive based plays such as digital and board games at home.

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CHAPTER IV

A COMPARATIVE ANALYSIS OF THE FIRST TRANSFORMATION IMPLEMENTATIONS OF DEVELOPED AND DEVELOPING COUNTRIES TO EMERGENCY REMOTE TEACHING AT THE COVID-19 PANDEMIA PROCESS

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1. Introduction

Many parameters affect the development level of societies. When the reports of the International Monetary Fund (IMF) are examined; It is seen that there is no clear criterion in the categorization of the development of countries, but the national income per individual is considered with a classification parallel to the economic growth of the nations (IMF, 2016). At the beginning of the parameters directly related to the economy; industry, resources, health, education, transportation and security. While the health, transportation and security stakeholders ensure the daily life needs of the

people, the education stakeholder has the function of guaranteeing the future of the country. In other words, *education* can be defined as a factor that allows countries to move forward and affects development (Aslan, 2013; Kınık, 2014). According to a study conducted by Altınok and Murseli (2007); There is a positive relationship between education quality and economic growth (Altınok & Murseli, 2007). Similarly, in another study, Hanushek and Woessmann (2009) stated that the cognitive skills of individuals living in both developing and developed countries have a positive and significant relationship with economic growth. With this aspect, it can be said that the education system has a substantial role in raising community members (Erginer, 2012).

Therefore, countries having a correct and well-structured education system will enable them to reach their planned targets in a shorter time. Almost every country globally has created a unique education system, considering its environmental characteristics (De Grauwe, 2008). The functioning of education and training systems varies according to the development level of the countries (Çiçek Sağlam & Aydoğmuş, 2016). Accordingly, it is seen that countries defined as “developed countries” provide equal opportunities in education, use education technologies up-to-date and widely, and develop education policies to guide education stakeholders, provide optimum conditions for educational activities and keep these stakeholders connected to the system. It is seen that countries” take measures to meet the basic needs of education and training environments (Çiçek Sağlam & Aydoğmuş, 2016).

The disease caused by the COVID-19 virus, which first appeared in Wuhan, China, in December 2019, has gradually spread in all countries of the world and just a few months, the World Health Organization has been declared as an epidemic (Pandemic) that threatens all countries (World Health Organization (WHO), 2020). In Turkey, the number of individuals who have been affected by this epidemic process has increased day by day (COVID-19 Information Platform, 2021). With the diagnosis of the first virus case in Turkey, education was interrupted at all levels to evaluate the effect of social isolation on virus spread. However, when it was understood that this spread was not a temporary and short-term situation, it was used as the only solution for sustaining “distance education” activities that allow time and space independence (MEB, 2020a). UNESCO (2020) has also announced that it will support countries that prefer distance education for the continuity of education by inviting countries to minimize the adverse effects on disadvantaged and vulnerable societies due to closed schools.

Although distance education, which has a history extending from the end of the 19th century to the present, has different definitions in the literature, in its most general form, it can be expressed as the realization of the learning needs of individuals within an institution, regardless of time and place (Aydın, 2012).

Distance education is increasingly popular because it provides equal opportunities in education for all individuals involved in the process, offers lifelong learning opportunities, provides an environment for individuals who cannot participate in formal education and training activities, and provides unique learning opportunities with the support of technology (Kaya, 2002). Before the epidemic, education could not be met through formal institutions parallel with the increasing population, which increased the importance of distance education (Çengel, 2014). Although distance education processes were considered an alternative to face-to-face education during the epidemic period, “emergency distance education” started with the transfer of face-to-face teaching to the online environment. While emergency distance education is not planned as distance education in the planning stage of the education process, it refers to realizing teaching activities face-to-face in a crisis. In contrast, it refers to continuing by the planned format when the crisis decreases or disappears (Hodges, Moore, Lockee, Trust. and Bond, 2020). The purpose of presenting this method is not to achieve the educational objectives through distance education but to prevent students from breaking away from the education process in times of crisis (Aydın, 2020). The current situation is to produce temporary solutions for education and try to keep education alive (Bozkurt, 2020).

This study aims to comparatively examine the emergency remote education transformation processes according to the development levels of the countries in the pandemic process that affects the world. The educational platforms used in transforming the formal education processes of developed and developing countries into emergency remote teaching and the applications made in the teacher-student interaction process were examined comparatively. Similar and different aspects with the measures taken to prevent the educational methods of the countries were revealed. In this context, the features specified, distance education transformation processes of the countries have been examined within their development levels. According to the study results, parallelism is observed

in the distance education policies of developed and developing countries. In addition, it has been determined that similar practices are followed in cases where the type of content offered, the channel where the content is presented, the target audience, the courses and platforms offered exist or are created from scratch during the pandemic process.

2. Educational Solutions in Developed Countries at the Beginning of the Pandemic

2.1 United Kingdom

The UK is one of the countries most affected by the epidemic. Many applications have been carried out to prevent the spread of the virus in the country. One of these practices is the closure of schools regionally in the country (February 29, 2020) and then all in the UK on (March 20, 2020) (UNESCO, 2020). In this process, to continue education in the country, the education sector of the United Kingdom and the education sector have taken various measures in coordination.

A platform called Bitesize Daily, which they call home-schooling, has been developed within the BBC (British Broadcasting Corporation) to continue education by the United Kingdom. This platform was put into practice on April 20, 2020, and 20-minute programs were shared with students daily on weekdays. The programs offered to students are divided by subjects included in schools, countries within the UK, and age groups. A separate page has been opened for each program, and on these pages, texts, videos, games, tests, activities and content suggestions for learning more are presented. Students can access these contents via television, the internet and the BBC iPlayer application (BBC, 2020; GOV.UK, 2020).

Besides, during the coronavirus epidemic, the platform called Oak National Academy, an online learning environment was developed with the support of the UK government with the leading public school teachers of the country. In this environment, teachers can create their virtual classes, teach life lessons, and share videos, exams, activity pages. It was stated that teachers could create lesson plans, follow the curriculum, and monitor students' engagements. This environment is not mandatory for students and teachers but can be used as a primary learning resource or supporter if schools and teachers see it appropriately (Oak National Academy, 2020a). It

was aimed to present all the lessons in the curriculum in the environment, and it was stated that new resources would be delivered by updating every week. Oak National Academy platform can be accessed by various tools, including mobile phones, tablets, smart TVs and computers (Oak National Academy, 2020b).

A platform named The Key for School Leaders has been proposed to support school administrators and teachers in this process and students. From how to set up a digital education platform using Office 365 Education version and G Suite on the platform recommended by the government to school administrators and teachers during the virus epidemic process, how to deliver emergency distance education, how to approach students in this process to protect both general and mental health, communication with parents many suggestions and resources are provided. In addition to these, we have made suggestions on teaching, teaching students, evaluating them, and increasing success through curriculum according to grade levels and the platform offered (The Key for School Leaders, 2020).

2.2 Spain

Spain is another of the developed countries affected by the virus epidemic. In Spain, schools were closed regionally on March 11, 2020, and nationwide on March 16, 2020 (UNESCO, 2020) to reduce coronavirus spread.

The first practice in Spain on behalf of the sustainability of education was the Ministerio de Educación y Formación Profesional [MEFP] and the National Institute of Educational Technologies and Teacher Training (Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado [INTEF].) is establishing an online TV channel EduClan within the Radio and Television Corporation of Spain (Corporación Radiotelevisión Española). The channel, which started operating as of March 16, 2020, has been put into practice for families with children between 3 and 12. The content on EduClan has been created using the resources of educational publishers worldwide such as British Council, Pearson, McGraw Hill and MacMillan. Language, logic and mathematics, social studies, natural sciences, art and physical education lessons were given to students in the environment. These courses are presented as games, videos, mobile applications, books, educational

series, and activities according to the students' age levels. Students can access EduClan using their mobile phones, tablets and intelligent televisions (MEFP, 2020a).

In addition to the EduClan channel, ClanTV, one of the existing channels within the Radio and Television Corporation of Spain (Corporación Radiotelevisión Española), was used. In the publications, students taught the lessons included in the curriculum from 9:00 to 11:00 every weekday (MEFP, 2020b). They have benefited from essential publishers such as McGraw Hill, Oxford University and Pearson in the lectures offered in the publications.

Also, Spain's Ministry of Education and Vocational Education (MEFP) has created a platform called Learning at Home (Aprendo en Casa) to continue learning at home during the epidemic process. On this platform, students could view the educational programs broadcast and be published on the ClanTV channel as of March 23, 2020 (MEFP, 2020b). Teachers were also able to acquire digital educational resources in this environment, access resources classified according to their education levels and subjects, and examine the YouTube channels of other home-based teachers. Practical information on many issues such as virtual classrooms, content publication, and evaluation was provided to teachers, and instructions were created to continue their educational activities. Besides, teachers were informed about services such as tools, web pages and materials offered by other organizations (e.g., Google, Microsoft, Cisco), and teachers were advised on emergency distance learning applications and platforms (MEFP, 2020c). The platform presented content for teachers and students as well as families. Tools, websites and applications that will help children spend quality and fun have been proposed (MEFP, 2020d).

The Spanish Ministry of Education and Vocational Education (MEFP) has also used the open education resources network Procomún, created before the epidemic process, in this process. This platform is an open-access resource repository created by autonomous communities. Tens of thousands of resources and thousands of users benefit from the platform, and there are resources in different learning contexts on many subjects such as technology, psychology and music. In addition to Internet access, the platform also has a mobile application (INTEF, 2020).

2.3 Italy

Italy is the other European country most affected by the virus epidemic. During the epidemic, schools in the country were closed regionally on February 24, 2020, and nationwide on March 10, 2020 (UNESCO, 2020). In Italy, some measures have been taken to continue education with the closure of schools to reduce coronavirus spread.

The Ministry of National Education created a web page named New Coronavirus (Nuovo Coronavirus), the Ministry of University and Research (Ministero dell'Istruzione, Ministero dell'Università e Della Ricerca [MIUR]) to continue educational activities in the country (MIUR, 2020a). This web page contains lists of tools, materials and webinars to implement emergency distance education. In Italy, the Ministry of National Education has been assigned to provide educational institutions free platforms for education. However, it is up to the school principals to decide which of these platforms will be used (Gazzetta Ufficiale, 2020). Accordingly, when the platforms included in the New Coronavirus website by the Ministry of Education and providing free access to schools are examined, there are Google Suite Education Version, Microsoft Office 365 Education A1 Version and WeSchool (MIUR, 2020b).

Training has been provided on the TV channel Rai Scuola, under the state television broadcaster Rai of the Italian Ministry of Education, and has provided educational content since 1999. While educational broadcasting was made on this TV channel, video content, interactive content, photo galleries and educational activities were shared on the web page (Rai, 2020a). In addition to Rai Scuola, learning contents were also presented on the TV channel named Rai Play. Informative broadcasts are made under the heading of learning on the channel where content for children and young people is shared (Rai, 2020b).

Another learning environment put into practice in Italy is Treccani Scuola (Treccani School). This platform is offered free of charge by the Ministry of Education for schools to use during the epidemic period. In this platform, teachers created their virtual classrooms, used the multimedia materials in the platform, and were able to test the course success of the students. This platform can be accessed by mobile phone, tablet and computer (Treccani Scuola, 2020).

In Italy, school principals have access to materials, methods and tools offered by UNICEF Italia, universities and other private organizations, and Rai channels and Treccani Scuola (MIUR, 2020b). In these applications, decisions taken by school principals and implemented by teachers have given them a great responsibility. The Italian Ministry of Education requested school administrators and teachers to share their experiences in this process and were shared on the New Coronavirus website (MIUR, 2020c). A platform where webinars are organized by the National Institute for Documentation, Innovation and Educational Research (INDIRE) has been presented to inform school administrators and teachers about emergency distance education and methods (INDIRE, 2020). “Coronavirus and Internet Safety for Children and Teens,” “Discussion as an Effective Assessment Tool,” “Editing Distance Learning with Google Education Edition,” “Wikimedia Resources for Online Teaching,” “Remote Community Building: Students’ Active Role in the Digital Community are some of the webinars.

2.4 France

France is another developed European country. As in many sectors in the country, education has also been affected by the epidemic. Schools that were regionally closed on March 3, 2020, were closed across the country on March 16, 2020 (UNESCO, 2020). With the closure of the schools, the French Ministry of National Education has put many platforms to work to continue educational activities.

The first of these platforms were presented by the National Distance Education Center (CNED) affiliated with the French Ministry of National Education and Youth (Le ministère de l’Éducation Nationale et de la Jeunesse), secondary and high school level. *à la Maison*)” is the established platform (Ministère de l’Éducation Nationale, 2020). Students can participate in online activities on this platform, follow their lectures, access their digital books, and continue their learning with various animations and visuals. Teaching in the environment is carried out with sessions; each session is carried out within a specific target and topic pattern. Educational institutions can benefit from the virtual classroom environment provided by the platform. Thanks to this environment, students can communicate with their teachers and other students, their lessons can be taught, and resources can be shared (CNED, 2020).

Canopé Network (Réseau Canopé; a formation that publishes educational resources suitable for different media tools [Réseau Canopé, 2020]), affiliated with the French Ministry of National Education and Youth, has made the CanoTech environment available for the sustainability of education during the epidemic. This environment has been developed so that students from kindergarten to 12th grade at the high school level can continue their education during the epidemic period. In the environment, teachers are provided with conferences, supportive distance education modules, webinars and podcasts, and training to continue their education in the best possible way after the epidemic. As for students, the learning contents prepared by CNED within the scope of the “My Class Is At Home” project are presented in this environment. Simultaneously, resources are shared with students by the school curricula of specialized colleges in different fields (CanoTech, 2020).

In France, the “Éduscol” platform was created by the Ministry of National Education and Youth in 2000 to inform and support education professionals such as teachers and administrators (Éduscol, 2019a). In this platform, educational resources according to class levels, subjects and disciplines are shared with educators. Teachers were informed about the tools they will use in the education and training process, and in-service training, seminars and meetings were shared. A separate section has been created for students who need special education on the platform, where resources are transferred from kindergarten to university. It was recommended by the French Ministry of National Education and Youth for students and teachers to use Éduscol during this period.

In France, the “Innovation Numérique Pour l’excellence Éducative” movement was established, and disciplined Digital Resource Banks for School (Les Banques de ressources numériques pour l’École [BRNE]) were created (Éduscol, 2019b). These banks, created by private institutions, were supported by the French Ministry of Education and Youth. Since the 2019-2020 academic year, nine different digital resource banks containing content for different education levels from primary school to high school level have been openly presented. Digital resource banks specialized in various disciplines such as mathematics, science, Italian and German have different types of educational content such as mental maps, videos, interactive animations, worksheets. Although the contents are offered over the internet, these digital resource banks also have smartphone and tablet applications.

Another platform established by the French Ministry of National Education and Youth before the epidemic process and continued to be used in the coronavirus epidemic is the “Éduthèque” platform (Éduthèque, 2018). This platform was developed by the French government within the scope of public digital education service and offered to students and teachers in primary and secondary education. Cooperation was made with public institutions and organizations such as BBC Learning, Deutsche Welle, and Louver in creating this platform (Éduthèque, 2020a). Creating this environment aimed to enrich students’ lessons, develop artistic and cultural education, and ensure education sustainability throughout the country. While students and teachers can access content for free, class accounts can be created depending on the content producers (Éduthèque, 2020b). While there is content in more than one discipline such as humanitarian and social sciences, science, art, literature, physical education, media and information education, moral education in the environment, there may be different types of content such as text, pictures, photographs, videos, 3D graphics depending on the institution presenting them. Again, depending on the institution that offers the range, videos and other animation content are shown with French and English subtitles.

One of the platforms offered for the continuation of education in France is the Lumni platform. This platform includes the Ministry of National Education and Youth, the Ministry of Culture (Le Ministère de la Culture), the Education League (La Ligue de l’enseignement) to bring together students, teachers, families and leaders to provide education, culture, sports and leisure activities. Movement, formation [La Ligue de l’enseignement, 2020]), Media and Information Education Center (Center Pour l’éducation Aux Médias et à l’information; responsible for media and information education in the French education system under the Ministry of Education and Youth The organization [Center Pour l’éducation Aux Médias et à l’information, 2020]) and the Canopé Network. Content suitable for more than ten thousand curricula from primary school to high school level is offered free of charge. Supporting students’ lessons in the environment, doing their homework, understanding the environment and the world, content in video, audio, game, and article types for teachers to prepare, show, and share their lessons (Lumni, 2020).

3. Educational Solutions of Developing Countries at the Beginning of the Pandemic

3.1 Turkey

The first Covidien in Turkey between developing countries-19 virus attached to the case with the decision taken on March 12 following the release of March 11, 2020, from March 16, 2020, has been suspended education (Ministry of Education [Ministry of Education], 2020b). In this interim period, which was thought to be short, various steps were taken to continue the education of students.

The Ministry of National Education decided to run it with the Education Informatics Network (EBA), an online learning platform, right after closed schools. EBA is a learning environment used since the 2011-2012 academic year and contains many learning materials such as videos, documents, e-books, tests, and activities shaped according to the teaching curriculum from preschool to the high school level. In addition to the thousands of materials it offers, it is a dynamic portal and the meeting point of teachers and students. Teachers were able to assign students the evaluation task, determine their academic needs and suggest materials for these needs, and upload the video recordings they made to EBA. Also, 8th graders prepared for High School Entrance Exam (LGS) and 12th graders prepared for Higher Education Institutions Exam (YKS) were able to take life lessons simultaneously on the EBA platform. Over 400 educational activities have been presented to support students who need special education in academic terms on the platform, including various materials among special education students (Özer, 2020).

The online learning platform of EBA and the Ministry of Education, the national channel which is Turkey Radio and Television Corporation (TRT), in cooperation with TV channels, have also established EBA. EBA TV 1-2-3 were selected on three separate tracks, and educational broadcasts were made throughout the day at primary, secondary and high school levels (MEB, 2020b). Considering the professional development of teachers and students, MoNE prepared 17 professional development programs in different categories with the cooperation of UNESCO. It has been stated that approximately 125,000 teachers will participate in professional development programs when schools are closed. Besides, families have prepared various guidelines for adults and young people to support them in a psychological context during the epidemic. A helpline has

been established for students and parents to receive psychosocial support (Özer, 2020).

3.2 Romania

Romania is one of the countries affected by the epidemic in education practices within the Eastern European region among developing countries. Schools in the country were closed nationwide on March 11, 2020 (UNESCO, 2020). With the closure of schools, various steps have been taken to continue education.

The first of these steps was the broadcasting of television programs by Romania's Ministry of Education and Research (Ministerul Educației și Cercetării) and National Romanian Television (Televiziunea Română [TVR]) to prepare eighth and 12th-grade students for national exams. After these programs were broadcast on TV, they were archived on the Youtube channel, Facebook page, and the TV channel's web page (Telescoala, 2020).

Many steps have been taken within the scope of the "Curriculum Relevant, Educație Deschisă Pentru Toți [CRED] project, which was created between 2014-2020 with the support of the Romanian Ministry of National Education and Research and the European Union Social Fund. In the project, in which the curriculums were prepared according to the student groups and courses in general, open education resources were created and shared over the EduCred.ro platform. Although the platform was developed within the scope of the CRED project, both the resources created during the project process and the resources produced and recommended by the Romanian Institute of Educational Sciences (Institutul de Științe ale Educației), PISA and UNICEF, were shared. Due to the limitations of the content prepared in different media types, the shared resources were generally text-based content. The platform also shared content on how teachers and families should support students with other characteristics (EduCred.ro, 2020).

An open-source proposal platform named "digitaledu" was established in 2019 by the Romanian Ministry of National Education and Research to be used at primary, secondary and high school levels. This digital platform contains resource recommendations at different levels, different disciplines and different languages. Resources are selected, reviewed, and approved by educational science experts. In addition to these resources, the platform proposes other educational platforms that teachers can use and leaves all these resources and platforms used to teachers' choices (digitaledu, 2020).

Another platform offered in Romania is the digital book platform called “Manuale Digitale.” On this platform, printed versions of the books included in the curriculum and recommended to be used in the Ministry of National Education and Research courses are presented digitally. Course and practice books of different disciplines and different levels are available on the platform (Ministerul Educației și Cercetării, 2020).

3.3 Ukraine

Ukraine is one of the developing countries whose educational practices were affected during the epidemic process. With the spread of the epidemic, all schools were closed regionally on March 6, 2020, and nationwide on March 12, 2020 (UNESCO, 2020). Since this date, efforts have been made to continue education in the country.

TV broadcasting was first used in Ukraine to continue education during the epidemic period. The Ministry of Education and Science of Ukraine has agreed with 14 private TV companies to teach Ukrainian Language, Ukrainian Literature, History, World History, English, Physics, Algebra, Geometry, Geography and Biology from grade 5 to grade 11. These organizations broadcast on TV channels from 10:00 in the morning on weekdays. Recordings of the broadcasts are presented on the ministry’s Youtube channel and in the internet TV broadcasting environment called Megogo (Government Portal, 2020).

3.4 Poland

Poland is another country that is developing and changing educational practices during the epidemic. All educational institutions in the country were closed on March 16, 2020 (UNESCO, 2020). In this process, many platforms have been put to work in the country to continue education.

The first of the practices to continue education during the epidemic period is the broadcasting of the program named “School with TVP (Szkole z TVP)” on the Polish Television (Telewizja Polska [TVP]) every weekday starting from March 30, 2020. These publications made lesson plans close to the curriculum to support children and young people’s emergency distance education process. The lectures were broadcast in the mornings, and the courses were re-broadcast in the afternoons (TVP, 2020). Broadcast recordings are

presented on TVP's platform named TVP-VOD. Also, the platform includes exam preparation contents for students preparing for exams and educational, instructive and entertaining content scheduled for kindergarten students (TVP-VOD, 2020).

Another platform used during the epidemic period to continue education in Poland is the national education platform "epodreczniki.pl", created by the country's Ministry of Education (Ministerstwa Edukacji Narodowej). When the contents of this platform are examined, it is seen that there are curriculums and lesson plans prepared by the ministry for students studying from preschool education to high school and technical school level (epodreczniki.pl, 2020a). Various guides have been published on the platform to continue emergency distance education. These guides contain content on how school principals and administrators can maintain emergency distance education, what valuable tools and materials they can use in general and particular education, vocational education, foreign language teaching, science teaching, and how they can protect their data in distance education (epodreczniki.pl, 2020b). The platform allows teachers to create classrooms to conduct lessons with their students and provides the opportunity to present open E-books (epodreczniki.pl, 2020c) and resource catalog (epodreczniki.pl, 2020d). Lecture and related activities are included in the e-book and resource catalog. These contents are presented through text, visuals, videos and animations. The platform provides psychological and pedagogical support to students, teachers, educators and parents through guides prepared in addition to all of these (epodreczniki.pl, 2020e).

In 2019, an educational game platform, "Niepodległa," was created by the Polish Ministry of Education to explain Poland's struggle for independence. Students complete 15 tasks from primary school 1st grade to secondary school level in this environment and learn about the battle for freedom while completing these tasks (Niepodległa, 2019).

As another application, the Polish Ministry of National Education and the European Union have created an electronic educational resources platform called "scholars" for teachers to benefit from. In Scholaris, there are resources for all education levels, from kindergarten to high school, and they are offered free of charge to everyone. The contents of this platform are compatible with the student's curriculum and can be used with interactive boards and other devices according to teachers' applications and students with tablets. There is 28

thousand interactive content of different types such as lesson plans and books, exercises, texts, animations, slides, simulations, educational games, movies, and a project presented to support the educational processes of teachers and students (Scholaris, 2020).

On another platform created by the European Union in Poland, “Open Poland! (Włącz Polskę!)” Platform. It is a collection of educational resources prepared for schools in Poland to create textbooks for their students through this platform. Teachers can develop electronic textbooks for students on this platform. The designed books are prepared for different ages and levels of knowledge in various courses, are accessible to everyone and are free (Włącz Polskę!, 2020).

The “Lektury” platform was created by the Ministry of Investment and Development (Ministerstwo Inwestycji I Rozwoju) and the Ministry of Digitalization (Ministerstwo Cyfryzacji) for the digitization of books in Poland and world literature. The platform enables schools to digitize the books they offer to students and read them openly. The platform allows for the digitization of books as well as the creation of their audio versions. The platform can be used on the internet and via its mobile application (Lektury, 2020).

A platform called “Ninateka” has been created by Poland’s National Audiovisual Institute (Narodowy Instytut Audiowizualny) to present visual and audio content. More than 7 thousand audio-visual materials are offered free of charge, including documentaries and feature films, interviews, animations, experimental films, recordings of theater and opera performances, concert recordings, reports documenting cultural and social life, and radio programs (Ninateka, 2020a). An educational area called “Ninateka Edu” has been opened on the platform, and students and teachers can create special accounts in this area. In the platform, teachers are provided with audio-visual materials adapted according to the curriculum to use Polish culture, society, history, music and theatre in a supportive way. Also, lesson plans are provided to organize their lessons using these materials (Ninateka, 2020b).

The digital education platforms that the countries considered within the scope of the study employed during the COVID-19 epidemic process were examined. The platforms offered by the governments are summarized in Table 1 and Table 2.

Table 1: Digital Education Platforms That Developed Countries Employ During the COVID-19 Outbreak Process

COUNTRY	PLATFORM	MEDIA	TARGET GROUP*	CONTENT	CONTENT TYPE **	EXISTENCE STATUS	DE *** TRANSITION TIME
United Kingdom	Bitesize Daily	TV, Web, Mobile	Student-Teacher	All Courses	MM	New	1Month
	Oak National Academy	Web	Student-Teacher	All Courses	MM, I	New	
	The Key for School Leaders	Web	School Administrator-Teacher	Info for Teachers and School Administrators (Office 365 Education version, G Suite)	MM, D	New	
	EduClan	TV, Web, Mobile	Pre-K12 Student and Families	Language, logic and mathematics, social studies, natural sciences, arts and physical education	-	New	
Spain	ClanTV	TV	All Students	All Courses	TV	New	5 Days
	Aprendo en Casa	Web	Student, Teacher	All Courses, Info for Teachers (Google, Microsoft, Cisco)	TV, I, M-E	New	
	Procomún	Mobile, Web	All Target Group	Many subjects such as technology, psychology, music	D	Existing	

* Pre: Preschool level learning; K: Primary education level; BA: Higher education level education

** MM: Multimedia: Texts, videos, games, tests, interactive digital activities; TV: Television broadcast; M-E: Measurement and Evaluation; I: interactive course materials; D: Non-interactive course materials and e-books; V: Video ; DG: Digital Game.

*** DE: Distance Education

Table 1 (Continue): Digital Education Platforms That Developed Countries Employ During the COVID-19 Outbreak Process

Italy	Nuovo Coronavirus	Web	Teacher-Student	All Courses	I, D, M-E	New
	Rai Scuola	TV, Web	Teacher-Student	Selected courses	MM, I	Existing
	Treccani Scuola	Web, Mobile	Teacher-Student	Selected courses	MM,I,ME	New
	UNICEF Italia	Web	School Administrator-Teacher-Student	Experiences in the process	D	New
France	INDIRE	Web	School Administrator - Teacher	Distance Education Information	E	
	Ma Classe à la Maison	Web	Teacher-Student	----	MM, I, M-E	New
	CanoTech	Web	Teacher-Student	----	MM, I	New
	Éduscol	Web	School Administrator-Teacher	---	I	Existing
France	BRNE	Web, Mobile	Student	Specialized in different disciplines such as Maths, Science, Italian, German	MM, D	Existing
	Éduthèque	Web	Teacher-Student	Multiple disciplines such as humanitarian and social sciences, science, art, literature, physical education, media and information education, moral education	MM, D	Existing
	Lumni	Web	K12 Student-Teacher	Education, culture, sports and leisure activity	MM, D	New

* Pre: Preschool level learning; K: Primary education level; BA: Higher education level education

** MM: Multimedia; T: Texts, videos, games, tests, interactive digital activities; TV: Television broadcast; M-E: Measurement and Evaluation;

I: interactive course materials; D: Non-interactive course materials and e-books; V: Video ; DG: Dijital Game.

*** DE: Distance Education

Table 2: Digital Education Platforms Where Developing Countries Employed During the Covid-19 Outbreak

COUNTRY	PLATFORM	MEDIA	TARGET GROUP*	CONTENT	CONTENT TYPE **	EXISTENCE STATUS	DE *** TRANSITION TIME
Turkey	EBA	Web	PRE- K12 Teacher, Student, Family	All Courses	MM, D	Existing	7 Days
	EBA TV	TV	K12 Teacher, Student, Family	All Courses	TV, I	New	
	TABii	Web, Mobile	K12 Teacher, Student	All Courses	DG	New	
Romania	Telescoala	Youtube, Facebook (Web), TV	K8-K12 Student-Teacher	All Courses	MM, D, TV	New	
	CRED	EduCred.ro (web)	Teacher, Student, Family	Content developed by Institutul de Științe ale Educației, PISA and UNICEF	D	Existing	
	Dijitaledu Manuale Digitale	Web	Teacher, Student	---	MM, D	New	
		Web	Teacher, Student	All Courses	D	New	

Ukraine	Megogo	TV, Youtube, Web	K5-K12 Level Students	Ukrainian Language, Ukrainian Literature, History, World History, English, Physics, Algebra, Geometry, Geography and Biology	V	New	6 Days
Poland	TVP, TVP-VOD	TV, Web	PRE-BA	All Courses	V	New	
	Epodreczniki.pl	Web	PRE-BA Students, Teachers and School Administrators	All Courses, Classroom Management, useful tools and materials in the process of DE	MM, D	New	
	Niepodległa	Web	K8	Poland's struggle for independence	DG	Existing	2 Weeks
	Scholaris	Web	PRE-K12	All Courses	MM, D	New	
	Włącz Polskę!	Web	Teacher, Student	All Courses	D	New	
	Lektury	Web	Teacher, Student	All Courses	D	New	
	Ninateka	Web	Teacher, Student	All Courses	TV, MM		
Ninateka Edu	Web	Teacher, Student	Polish, culture, society, history, music, theater	MM	New		

* Pre: Preschool level learning; K: Primary education level; BA: Higher education level education

** MM: Multimedia: Texts, videos, games, tests, interactive digital activities; TV: Television broadcast; M-E: Measurement and Evaluation; I: interactive course materials; D: Non-interactive course materials and e-books; V: Video ; DG: Digital Game.

*** DE: Distance Education

4. Conclusion and Recommendations

In this study, the emergency and first intervention distance education practices of developed and developing countries for IMF during the COVID-19 pandemic process. For selecting the countries, the criteria of having a central education policy, not being governed in the state system, and being close to each other in terms of geographic location were considered. In this context, emergency distance education plans of the United Kingdom, Spain, Italy, France, Romania, Ukraine, Turkey, Poland have been analyzed. In all countries, it is seen that education activities from pre-school level to 12th grade are transferred to central distance education platforms under the control of the ministries. At the higher education level, institutions use more than one platform for distance education in line with their means. Although there is a standard framework from pre-school level to the 12th grade, the levels from pre-school to the 12th grade were included in the study since a common application could not be made at the higher education level.

The platforms used in the transition to distance education from developed countries, the United Kingdom, Spain, Italy and France, the source of the platforms, the target audience where the activities are presented, the courses, contents and the time of transition to distance education were examined. According to this; While France uses the web (internet) to deliver all of its events, the UK, Spain and Italy have also employed television, web and mobile resources. While it is preferred to use more than one platform to present the content, the platforms are diversified according to the content type. In all four countries, the content was given to students from pre-school to higher education and their parents and teachers and school administrators working at these levels. When the framework of the courses was examined, it was tried to include the courses in the formal education programs. In all developed countries examined within the scope of the study, attention was paid to the presentation of more than one content type over the platforms, while the emphasis was placed on the representation of interactive multimedia content in the UK, Italy and France. In Spain, more television broadcasts were preferred. While the process continues by adding new ones to the existing platforms in all developed countries except the UK, all media in the UK were created from scratch during the pandemic process.

Developing countries of Romania, Ukraine, Turkey, Poland, and distance learning to switch platforms they use in the process, the resources available on the platform, the target audience, which offers activities and lectures, were examined in terms of content and remote training transition periods. According to this; While web (internet) and television are used to present the events in Romania, only YouTube (Web) broadcasting has been preferred in Ukraine. Turkey is used in both web and television broadcasts; the web and predominantly minority in Poland were chosen as an alternative to television. Even the students at pre-school and K-12 Levels are the target group in Turkey and Poland, Ukraine and Romain focused on the students from primary school to 12th graders. Romania and platforms in Turkey's teachers, while students and families, the target audience of students in Ukraine, while in Poland the students, teachers and school administrators have been created.

When the framework of the courses is examined, it has been tried to include the courses in formal education as in developed countries. Of the countries analyzed in the study Romania, Turkey and presented while taking care of multiple content types in Poland it is only used to broadcast video YouTube in Ukraine. Romania, Turkey and Poland density as interactive multimedia, video and e-document the weight given to the content, the more internet television broadcasting in Ukraine are preferred. While all developing countries except Ukraine continue the process by adding new ones to their existing platforms, the platform where content is offered in Ukraine was created from scratch during the pandemic process, just like in the UK.

If it is necessary to express a general result for all countries;

1. In all countries except Ukraine, attention has been paid to presenting content for all stakeholders of education,
2. It is seen that the framework of the presented content is composed of contents parallel to the lessons in schools, more than one type of content is preferred, and the existing and used educational platforms are enriched and continued by adding new ones.

This situation can be considered a reason for the insufficiency of existing infrastructures and support mechanisms in the distance education process of institutions during the epidemic period, similar to the study by Hodges, Moore, Loochie, Trust, and Bond (2020).

As a result of all these practices at the end of the epidemic period, it is thought that education mechanisms should be reshaped with innovative alternatives, and thus, it will be a direct education and training practice rather than an alternative way (Can, 2020; Telli & Altun, 2020). However, it is necessary to conduct studies in some research areas to build these applications on healthy and correct foundations. Therefore, in future studies:

- Determination of academic success (the all type of content for all Stakeholders)
- Determination of motivation (the all type of content for all Stakeholders)
- Determining the attitude towards education and training in the process (the all type of content for all Stakeholders)
- Choosing the attitude and opinion towards educational platforms in the process (the all type of content for all Stakeholders)
- Choosing the attitudes and views towards the type of academic content (the all type of content for all Stakeholders)

are suggested to do studies on the subjects. Thus, the development of distance education systems, shaped by preliminary studies, can be realized through a systematic teaching design process rather than an unprepared process.

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CHAPTER V

SUSTAINABLE DEVELOPMENT 2030 AGENDA, WITHIN THE SCOPE OF QUALIFIED EDUCATION IN THE CONTEXT OF TURKISH EDUCATION

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1. Introduction

It is accepted that the establishment of a qualified education system based on solid foundations in the first quarter of the century is the basic condition for the countries to take firm steps towards the future. In this respect, development is now interpreted in a holistic way as economic, social and environmental development that ensures human well-being and dignity, ecological integrity, gender-based equality and social justice (UN, 2015). The concept of sustainable development at the public level in Turkey, held in Rio in 1992 the United Nations Conference on Environment and Development on the agenda after the XII also the first time in 1996 has been included in the Development Plan. Sustainability has become increasingly important in development plans and many policy documents. The National Sustainability Commission was established in the Ministry of Development in 2004, thus

it is understood that it is aimed to take sustainable development steps with a holistic perspective of the multi-actor institutional structure (Ministry of Development, 2012). Sustainable development perspective by creating a global vision in economic, social and political context; It contributed to the formation of the 2030 agenda covering all countries of the world. In this way, the 2030 Agenda provides a holistic and global perspective on the social, economic and environmental challenges we face or may face on Earth, with responsibility to society and its progress in the attempt to achieve harmony and shared prosperity between humanity and the planet, and to protect the environment we live in at all times. It aims at the development of consciousness. From a sustainable development perspective, education is the basis for improving our lives, shaping community life, increasing life satisfaction and welfare levels of societies. Sustainable Development Goals 2030 agenda within the scope of gender target; Discrimination based on gender working life in Turkey (Murat, 2017) and women participating in working life, social, economic, and social position (Merten et al. 2019) are discussed. Evaluation of education policies in the development plan (Maples et al., 2017) also stressed that it is said to be training in the healing process of the development of human and physical infrastructure immersive role of education in recent years in Turkey. The harmony of education policy processes between the 2030 targets has been demonstrated by Altunkaynak (2020). Amran et al. (2010) described the experience of sustainable specialization in higher education, and the contribution of the 2030 education agenda to adult education, as well as Marcella et al. (2017). Leal Filho et al. (2015) discussed data from ten years of education for sustainable development between 2004-2015. Conceptualizing lifelong learning for sustainable development and education Webb et al. The gender target of the UN 2030 agenda should be given importance Hepp et al. (2019), the role of education for sustainable development is again discussed by Nazar et al. (2018) in a qualitative pattern. The inclusiveness and quality of secondary education at the level of vocational and technical education, as well as their views, experiences and ideas on how they can contribute to students' lifelong opportunities, employability and reducing social inequality, Barbossa et al. (2020) explained in his research. The 2030 agenda for sustainable development and intercultural education has been studied by Catarci (2021). It is seen that the quality education theme of the UN 2030 agenda increasingly makes reference to 16,400 studies in the context of different variables in the google academic search, Erika et al. (2020) conducted

bibliometric analysis covering 240 scientific publications produced on the same theme. Kazuhiro et al. According to (2018); The link between the implementation of policy goals and implementation results in the field can be interpreted as a strong bilateral dialogue. Of educational research in Turkey SKH Goal 4 of the decade to respond to the data, the macro education policy of the thematic and comprehensive way as not sufficiently analyzed, the Ministry of Education's 2023 vision of education policy document not given to sufficiently measure, effective from politics for the next decade with this rationale It shows that the achievement of the results needs to be monitored in a more systematic and model framework. At the same time, comparative management of national targets and criteria with the achievement levels of UN member states should be deemed necessary in terms of building a common future. In this research, by explaining the relationship of Goal 4 of the Sustainable Development 2030 Agenda in the context of its sub-goals; Based on the historical data of the education system, it is aimed to make future predictions about achieving the goals. In the context of available data, the research is limited to the approach to realization rates.

1. The conceptual framework of the subject will be explained in the study,
2. The role of quality education in social development will be evaluated in the context of the current situation,
3. In Turkey, on the basis of policy documents will be discussed at data for qualified educational goals,
4. Results as to whether the Target 4 will be realized or not will be revealed.

2. Sustainable Development and Quality Education

The concept of international law was first used in 1870 by Jeremy Bentham in his work "Introduction to the Principles of Moral and Legislation" and was included in English texts after 1840 (Oppenheim, 1905). The role of the state has emerged as a political organization and has evolved into a modern state understanding based on the phenomenon of sovereignty, on the axis of development and development (Kıran, 2017). The concepts of quality of education (Veisson & Kabadayı, 2018) and sustainability in education (Kabadayı, 2016) were also studied in Turkish context. Ecology and environment education for sustainable development was also investigated in Turkish context (Kabadayı & Altınsoy, 2018). While development refers to the change in the socio-economic structure of the society in a country and the significant and real increase in the production

volume per population, the increase in the level of welfare; economic development means an increase in economic volume (Köklü, 1973). Economic development also leads to significant changes in the social structure, the welfare level of the society increases, solutions are produced to social problems and solutions that will enable people to live better (Güven, 1995).

German mining manager and accountant Hans Carl von Carlowitz first used sustainability in its modern sense in 1713 in his work titled “*Sylvicultura Oeconomica*”, despite its deep-rooted history, it can be said that the concept has come to the agenda of the world’s countries in the last fifty years (cited in Şen et al.2018: 3). . The agenda process is; At the UN Human Environment conference in 1972; environmental issues were brought to the global agenda, the sustainability and development, nature and natural resources conservation strategy document of the international conservation union of nature and natural resources was published in 1980, Brutland Report (UN, 1987), the first World Commission on Environment and Development with the word sustainability. He was introduced to it through the report titled “Our Common Future”, which he published. Human development report in 1990, an action plan called 21 Agenda and two important international conventions (UN Biodiversity convention and UN framework convention on climate change) emerged as a result of the UN conference on environment and development in 1992. In 1997, the first international framework agreement on climate change, the Kyoto Protocol, was signed at the UN. Millennium development goals in eight main categories in 2000 (goal 3 and goal 4) (Gilbert, 2004: 153-159). In 2000, the Dakar Framework for Action: Education for All: education for all goals were set in meeting our collective commitments. Millennium Development Goals In September 2010, after the world leaders set ambitious goals (UNDP, 2010), Sustainable Development Goals (SDGs) were announced instead of the Millennium Development Goals, which expired in 2015. The 17 goals planned to be implemented by 2030 include the main topics of a happier, more peaceful and healthy planet. UNESCO has been given a leading role in monitoring the agenda. It is understood that it assumes the responsibility of guiding the realization of political and political commitments and coordination in national and regional practices by developing standards (UNESCO, 2015). Therefore; It can be said that the social aspect of sustainability is more prominent (Spouse, 2008; Aksoy, 2013; Özmehmet, 2012).

Quality education; While education is accepted as a tool by which individuals can improve their quality of life, it is claimed to contribute to the development of societies (Paunescu et al., 2017). Training to help new generations acquire the necessary knowledge, skills and understanding to take their place in the life of society and develop their personalities; The property that indicates how something is and separates it from other things is defined as quality. In this context, for qualified education; We can say that it expresses a systematic activity process, both formally and informally, in order for individuals to acquire the necessary knowledge, skills, attitudes and behaviors while preparing them for life. Society, like an organism, is a structural-functional system consisting of parts that work for the life of the whole, interact with each other and support each other (Durkheim, 2016). Cooperation and coordination of all components of education in national and international scope is important in order to reach the goal of qualified education.

2.1 Millennium Development Goals (MDGs) and the Sustainable Development Agenda 2030

At the UN General Assembly meeting held in September 2000, in the special session of the determination of the MDGs, participating countries reached a consensus by signing a first to make significant progress in the economic, environmental and social conditions of the world's poor until 2015. While the performance to be shown in achieving the goal is uncertain for that day, what is certain is that the need to take immediate action against world poverty has been unanimously acknowledged. Sustainable Development Goals were born at the United Nations Sustainable Development Conference held in Rio de Janeiro in 2012. Although the targets implemented between 2000 and 2015 were not fully achieved, the experience gained has determined the new basic framework of global targets with 17 main objectives and 169 sub-indicators that will cover the years 2015-2030 with a new development understanding (Eşkinat, 2015: 15). The aim is to build a more sustainable Earth life with preventive goals. For fifteen years, the MDGs have been the driving force of progress in key areas such as poverty reduction, access to water and sanitation, reduction of child mortality and great improvement in maternal health. The seventeen goals of the SDG 2030 agenda are historically and intrinsically linked; essentially, it can be interpreted as the greatest opportunity to improve the lives of future generations.

Table 1: Sustainable Development 2030 Agenda Goals

Source: <https://turkey.un.org/tr/sdgs>

“H1: End poverty, H2: End hunger, H3: Health and quality life, H4: Quality education, H5: Gender equality, H6: Clean water and sanitation, H7: Accessible and clean energy, H8: Decent work and economic growth, H9: Industry, innovation and infrastructure, H10: Reducing inequalities, H11: Sustainable cities and communities, H12: Responsible production and consumption, H13: Climate action, H14: Life in water, H15: Terrestrial life, H16: Peace, justice and strong institutions, H17: Partnerships for goals. ” The Sustainable Development Goals are unique in that they cover the issues that affect us all and reaffirm our international commitment to eradicating poverty permanently and everywhere. It reflects the determination and desire to leave no one behind. More importantly, it enables us all to participate in the creation of a more sustainable, safe and prosperous planet for all humanity.

Table 2: Relation between Millennium Development Goals and SDG 2030 Goals

Millennium Development Goals	SDG 2030 Goals	Secondary Relationship Level
Eliminating extreme poverty and hunger,	H 1: End Poverty	
Reaching universal primary education,	H2: Zero Hunger	
To promote gender equality and empower women,	H8: Decent Work and Economic Growth	
Reducing child mortality	H 4: Quality Education	
Improving maternal health		
Improving the human immune system		H16: Peace, Justice and Strong Institutions

Ensuring environmental sustainability	H 6: Clean Water and Sanitation H7: Accessible and Clean Energy H9: Industry, Innovation and Infrastructure H11: Sustainable Cities and Communities	H12: Responsible production and consumption H13: Climate Action H14: Life Below Water H15: Terrestrial Life H17: Partnerships for Purposes
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Source: <https://turkey.un.org/tr/sdgs>

Although the understanding of sustainable development determines the common denominator in the economic and social development goals of countries as “sustainability”, it is seen that a strong view is needed to enable everyone’s basic needs and expectations for a better life to be met (Harris, 2000: 21). In the report, the role of education in transforming the economies of many countries into knowledge-based policies and achieving the goals, access to education in a lifelong learning approach, the extension of compulsory education to twelve years, the inclusion of pre-school in the scope of compulsory education, gender equality and the importance of gender equality in achieving the right to education (Altunkaynak, 2020). Based on the strong assumption that education assumes in development and the realization of other SDGs, the commitment to a holistic, ambitious, willing and renewed education agenda covering all segments of the society stands out.

3. Method

In this study, which is based on qualitative research method and document analysis technique was used as data collection tool, descriptive analysis technique was used in analyzing the data. The main purpose of document review; it is the analysis of written materials containing information about the phenomenon or phenomena aimed to be investigated (Yıldırım & Şimşek, 2016). Document review is used as a stand-alone research method, especially when direct interviews and observations are not possible. This method includes the analysis of written and oral materials that contain information about the topics that are planned to be researched. Document review covers the analysis of written materials containing information about the event or facts that are aimed to be investigated. Although document analysis has traditionally been a method used by historians, anthropologists and linguists, sociologists and

psychologists have also contributed to the development of important theories by using document analysis (Yıldırım & Şimşek, 2016).

3.1 Data Collection and Analysis

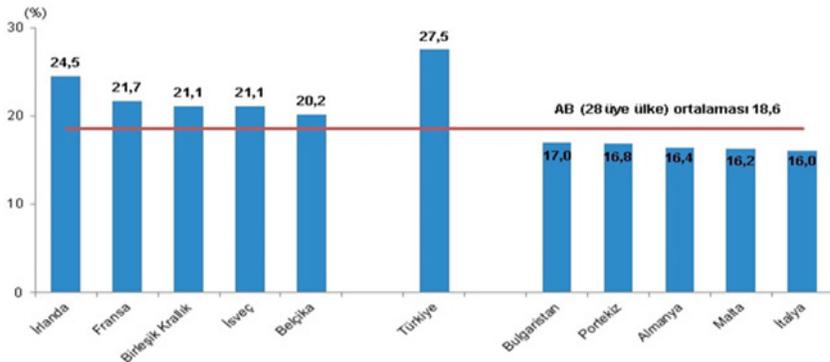
It covers the analysis of written materials that contain information about the topics planned to be investigated in the document review conducted in our research. The comparisons and analyzes of Sustainable Development 2030 Education Agenda, 2023 Education Vision Document, MEB 2014-2019 Strategic Plan, MEB 2020 Data evaluated in our study were presented to the opinions of two expert researchers in the field of education management. After the document review was completed, it was tried to ensure validity and reliability by having each expert checked the evaluations made by the other expert.

4. Findings

4.1 Qualified Education (Goal 4)

Within the scope of United Nations Sustainable Development Goals Agenda 2030, there are 7 sub-goals in Goal 4 titled Qualified Education; All of these goals are valid for Turkey. Table 3 which has a young population in the total population compared to 27.5% compared to the potential of young people, including Turkey, by a qualified educational process; It can be said that it has significant economic, social and political opportunities in the next decade.

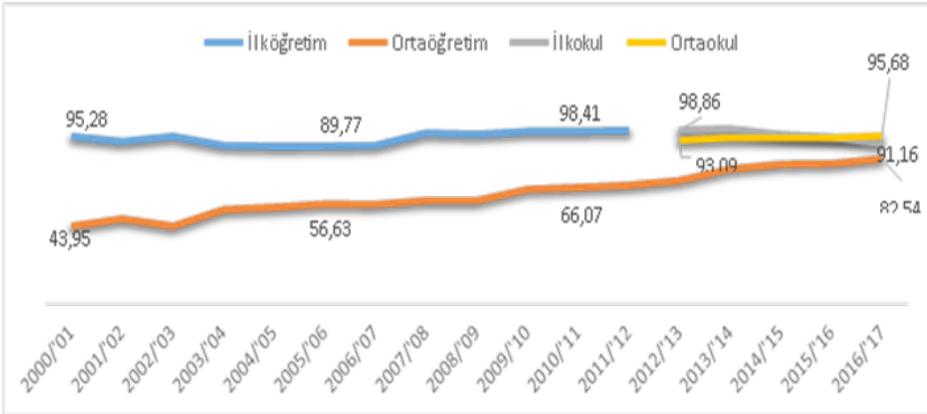
Table 3: Turkey and the EU-28 member states, the proportion of the child population in the total population (2019)



Kaynak: Avrupa Birliği İstatistik Ofisi, 2019
TÜİK, Adrese Dayalı Nüfus Kayıt Sistemi, 2019

4.1 By 2030, to ensure that all children complete free, equitable and quality primary and secondary education, which will lead to relevant and effective educational outcomes. Marope (2016); The goal of universal access to primary education has attracted the most attention worldwide and countries have made significant gains in this area. Meanwhile, the focus on universal primary school is noted to result in less attention to other key areas such as quality education and learning, early childhood care and education, and adult literacy. the duration of compulsory education in the 2012-2013 academic year in Turkey has been increased to 12 years. In public schools, education is provided free of charge at all educational levels (except preschool); Increasing the average duration of education in the MEB Strategy Plan (2019-23) and the 2023 education vision document; net schooling rate reaching 100% in primary and secondary education; It is aimed to prevent early leaves from compulsory education and to reduce absenteeism.

Table 4: Schooling Rates of School Types by Years. (2000-2017)



Source: https://sbb.gov.tr/wp-content/uploads/2020/03/Surdurulebilir-Kalkinma-Amaclari-Degerlendirme-Raporu_13_12_2019-WEB.pdf

In Table 4, from the 2009-2010 academic year to the year 2019-2020; In the 2000-2016 period, due to the increase of compulsory education to 8 years and then to 12 years, progress has been achieved in the number of students and net schooling rate. With the effect of the studies, applications and projects conducted within the scope of access to education, an increase is observed in the net schooling rate, especially at the primary and secondary school level, approaching 100%.

It is seen in Table 5 that there is a systematic increase in preschool education between the academic year of 2000-01 between the academic year 2016-17, proportional to the total number of students by gender.

Table 5: Preschool, Primary School, Secondary School, Secondary Education Level Schooling Rate (2009-2010 / 2019-2020)

Schooling Rate Preschool	Schooling Rate Preschool		
	Male Total	Female Total	Male Female Total
2009-2010			
3-5	27,34	26,48	26,92
4-5	39,17	37,91	38,55
2019-2020			
3-5	43,89	42,78	43,35
4-5	55,28	53,83	54,57

(*) Note: Age 3-5 10 years 62%

Schooling Rate Primary Education	Schooling Rate Primary Education		
	Male Total	Female Total	Male Female Total
2009-2010			
Bürüt	107,05	105,88	106,48
Net	98,47	97,84	98,17
2019-2020			
Bürüt	97,70	97,11	97,41
Net	93,74	93,49	93,62
Schooling Rate Secondary Education	Schooling Rate Secondary Education		
	Male Total	Female Total	Male Female Total
2009-2010			
Bürüt	89,14	78,97	84,19
Net	65,55	62,21	64,95
2019-2020			
Bürüt	104,65	107,34	105,96
Net	95,68	96,14	95,90

(*)It is concluded that the yearly gross total increased by 79.45% and the net total by 67.72%.

Schooling Rate Higher Education	Schooling Rate Higher Education					
	Male	Female	Total	Male	Female	Total
2009-2010						
Bürüt	58,14			48,48		54,43
Net	31,24			29,55		30,42
2019-2020						
Bürüt	113,39			112,14		112,78
Net	40,56			46,32		43,37

(*) It is concluded that the net total has increased by 30% in 10 years.

(*) It is considered significant in terms of gender equality, where women's access to higher education increased by 37%.

Source: http://sgb.meb.gov.tr/meb_iys_dosyalar/2020_09/04144812_meb_istatistikleri_orgunegitim2019_2020.pdf

When the quantitative increase and performance rates in the last ten years of education and the strategic plan of the Ministry of National Education (2019-2023) and the 2023 vision targets are evaluated together, it can be said that the goal included in Target 4.1 is achievable.

4.2 Ensuring that all children have access to quality early childhood development, care and pre-school education so that they can be ready for primary education by 2030

Target 4.2 covered the entire top policy documents in Turkey and the Ministry of Education Strategic Plan (2019-23); "Goal 3.1. The quality and prevalence of early childhood education will be increased, community-based early childhood will be diversified and widespread." It is observed that the initial target for 2023 is gradually increased from 44.02% to 55% in the 3-5 age group (MEB, 2019: 60).

The 2023 Education Vision Document includes making early childhood education compulsory for children who have completed 54 months, providing material support to families, and planning full-time education processes that cover summer periods. Considering the developments, while 32% in Turkey for 4-year-olds in pre-school, 86% at the OECD level; While it is 71% at age 5, it is seen to be at the level of 95% in OECD.

It is seen that at the pre-school education level, priority is given to the socio-economically underdeveloped regions.

Table 6: Net enrollment rate in pre-school education (2019-2020)

TR Türkiye	Yaş	Kadın	Erkek	Toplam	Kadın	Erkek	Toplam
	3-5	43,35	43,89	42,78	41,78	42,10	41,44
	4-5	54,57	55,28	53,83	52,41	52,82	51,99
	5	75,51	76,89	74,05	71,22	72,00	70,39

Table 7: Distribution by gender and number of schools (2019-2020)

Gender ratio by academic year and level of education				
Sex Ratio				
Academic year		Primary education	Secondary Education	High education
2009/'10		98,91	88,59	83,38
2010/'11		100,42	89,74	86,24
2011/'12		100,41	93,29	87,38
Academic year	Primary school	Middle School	Secondary Education	High education
2012/'13	100,59	102,94	94,15	88,05
2013/'14	100,82	103,69	94,59	89,24
2014/'15	100,57	101,10	95,40	90,15
2015/'16	100,57	103,20	95,56	90,54
2016/'17	100,09	101,58	94,30	91,97
2017/'18	99,84	101,76	93,25	93,28
2018/'19	99,58	101,90	93,83	96,35
2019/'20	99,40	102,56	94,52	98,90

Source: http://sgb.meb.gov.tr/meb_iys_dosyalar/2020_09/04144812_meb_istatistikleri_orgunegitim2019_2020.pdf

4.3 By 2030, ensure equal access of all men and women to affordable and quality technical, vocational and tertiary education, including universities

Within the scope of target 4.3, in the 2023 education vision document, which aims to increase the efficiency of vocational and technical education in order to train manpower for the market labor demand, program integrity with industry cooperation, higher education entrance system, access to efficient higher education and quality education through orientation in secondary

education according to students' interests and abilities; It is seen that the flexible and modular curriculum, the selection of the ninth grade field, the extension of the duration of stay in the real business environment, the training of personnel for the national defense industry, and scientific and social projects are aimed to be included.

European countries in lifelong learning participation rates in the Nordic countries, especially Turkey compared at higher levels (28-32%) has remained. The fact that it is the country that has shown the fastest progress in this field by showing an increase of 222% from 2007 to 2016 in participation in lifelong learning processes in direct proportion to development can be interpreted as an important indicator that this momentum will continue in the near future. In Table 6, the ratio of vocational education to the total number of students in general secondary education 5,630,652 can be interpreted as a high rate with 28.55% (MEB. 2020: 128). According to Barbosa et al (2020); The topics of equality, social status, employability for professional recognition are important.

Table 8: Vocational and technical education rate (2019-2020)

Schooling Rate	Vocational and technical education		
	Total	Male	Female
Gross Net	44,59	50,19	38,68
	36,28	40,28	32,06

4.4 By 2030, substantially increasing the number of youth and adults with the necessary skills, including technical and professional skills for employment, decent jobs and entrepreneurship

Encouraging people out of the educational age to benefit from open education opportunities within the scope of target 4.4; increasing skills and vocational training activities; Within the framework of the lifelong learning approach, it is aimed to continue the quality-oriented transformation that strengthens its harmony with the labor market and is based on equal opportunity.

In addition, measures should be taken to adapt vocational-technical 52 formal and non-formal education to the manpower needs of the economy, and to increase the employment of vocational and technical education graduates; ensuring equivalence by issuing equivalent occupational certificates to persons who have formal or non-formal education and have the same professional skills; improving non-formal education opportunities, increasing vocational training

activities especially for young people who cannot enter university; Considering disadvantaged groups (women, youth, disabled, long-term unemployed, convicts, etc.) as a priority group in terms of increasing participation in lifelong learning; In order to increase participation in lifelong learning, it is aimed to provide flexible learning paths for individuals who are out of education to re-enter the system.

Table 9: School, Student, Teacher and Classroom in Vocational and Technical Education (2019-2020)

School, Student, Teacher and Classroom Status	School	Number of Student			Number of Teacher			Class
		Total	Male	Femael	Total	Male	Female	
Secondary Total	4470	1608081	1006523	601 558	144255	73435	70820	74720
High School (Official)	4069	1499163	930231	568 932	135374	69781	65593	66045
Vocational and Technical Education	3591	1300048	800436	499 612	127985	66354	61631	65557
Secondary Education	-	16595	6870	9725	-	-	-	-
Special Education and Guidance	477	25907	16635	9272	7389	3427	3962	3488
Vocational Open Education High School	1	156613	106290	50323	-	-	-	-
Private Education Institutions	401	108918	76292	32 626	8881	3654	5227	8675

Source:: http://sgb.meb.gov.tr/meb_iys_dosyalar/2020_09/04144812_meb_istatistikleri_orgun_egitim_2019_2020.pdf

4.5 By 2030, end gender inequalities in education and ensure equal access to all levels of education and vocational training for all vulnerable, including people with disabilities, indigenous people and vulnerable children

Target 4.5. to ensure that all children, especially girls and the disabled, have access to school in primary and secondary education; equal access to education by reducing grade retention and dropout; Strengthening the human and physical infrastructure in order to ensure the education of the disabled and specially talented individuals in need of special education with inclusive education in suitable environments; It is aimed to enroll children who are out of compulsory education into the system and to carry out effective work on transitions between levels, and to focus on hostel services that prioritize girls in terms of access to school.

The Ministry of National Education Strategy 2015-19; 2019-2023 is given in the Document within the scope of Objective 4.5 include the following objectives: women's labor force participation rate in Turkey is below 50%, this rate of increase will significantly contribute to sustainable growth. Similarly, access of disadvantaged groups to education is a critical issue in terms of both reducing poverty and inequality and for these segments to be included in economic and social life. At the same time, the integration of Syrians under temporary protection into education, 40% of whom are under the age of 18, is considered within this scope.

While gross enrollment in the education of Syrian children in MoNE was 30% in 2014, it more than doubled in 2019 and reached 63.3% (UNICEF, 2020).

Table 10: Number of SSI Syrian Students Registered in Public Schools and TECs by Education Year (2019-2020)

Education Year	State School	Temporary Education Center (GEM)	Total	School Age Population	Gross Schooling Rate (%)
2014-2015	40.000	190.000	230.000	756.000	30
2015-2016	62.357	248.902	311.259	834.842	37
2016-2017	201.505	292.039	492.544	833.089	59
2017-2018	387.849	222.429	610.278	976.200	62,5
2018-2019	552.546	90.512	643.058	1.047.536	61,4
2019-2020	659.450	25.278	684.728	1.082.172	63,3

Source: UNICEF; statistics report for the education of children under temporary protection in Turkey (2019).

It is observed that the schooling rate of foreigners under temporary protection has doubled in formal education institutions in the last five years.

According to the level of education; The number of schools, students, teachers and classrooms of private education institutions is included in Table 11.

Table 11: Number of schools, students, teachers and classrooms in special education institutions. (2019-2020)

School Type	Number of Institutions	Number of Students	Number of Students	Number of Class
Private Elementary Education	433	159.542	3.122	4.239
Private Secondary Education	432	179.877	4.088	1.260
Private High School Education	481	81.482	7.465	3.585

Source: http://sgb.meb.gov.tr/meb_iys_dosyalar/2020_09/04144812_meb_istatistikleri_orgun_egitim_2019_2020.pdf; 40

It is an objective that focuses on the measurement of inequalities and inclusive education within the scope of provision for education. Access to girls' education direct and assisted assistance to future social welfare. It is an indisputable situation with women's participation in the labor force. In this way, it should be ensured that especially girls are prevented from leaving school early.

4.6 By 2030, ensure that all young people and a large number of both men and women adults are able to do literacy and mathematics

Within the scope of Goal 4.6, it is aimed to provide the support of public institutions and organizations, NGOs, written and visual media, private sector and local administrations within the scope of increasing the literacy rate in development plans and annual programs. Lifelong Learning Strategy Document, Vocational and Technical Education Strategy Document and Action Plan, National Rural Development Strategy, TÜBİTAK, Vision 2023 documents include the objectives of increasing the literacy rate and increasing and developing literacy in all age groups and basic mathematics skills within the scope of lifelong learning. In this context, it is aimed to carry out studies for the development of reading culture, including the MEB Strategy Document, to acquire reading habits in the society from an early age, to increase the number of books sent to schools, to increase basic skills by using more technology opportunities. In addition to formal education, it is also envisaged to increase

the number of literacy courses for youth and adults through non-formal education. The illiterate population was 19% for women in 2000, and 6% in 2015; men and 6% have declined to levels of 1% of that rate (MONE, 2019), TSI (2019) rate of 6 years of age female population illiterate in data 2.8% of male population ratio is 0.8%, compared to the general population in Turkey Target The target of 4.6, which will fall below exactly 1%, can be interpreted in an accessible manner.

4.7 2030'a kadar diğer konuların yanı sıra, kalkınma ve seyretme yaşam tarzları için eğitim, insan hakları, eşitliği, basitliği ve kültürel çeşitliliğin değerinin bilinmesi ile kalkınmaya olan katkısı da başkası olmak üzere, Öğrenmenin kalkınmanın yaygınlaşması için gerekli bilgi ve yetenek elde etmesinin sağlanması

Although there are some policies under the headings of awareness raising and awareness raising in development plans and annual programs related to Target 4.7, there is a need to develop more inclusive and holistic policies regarding this target. 4.a Within the scope of the construction and development of education facilities that are child, disabled and gender sensitive and to provide everyone with safe, non-violent, inclusive and effective learning environments; The “Barrier-Free School Model” launched in 2013 by the MEB Directorate General of Special Education; Barrier-Free School development process should be seen as a cycle of growth and change for schools. There is no single model of “Barrier Free School” seen as a set of realizable conditions; On the contrary, the school development process begins with an investigation of the barriers to learners’ full access, participation and achievement in education (including individuals with special needs and / or disabilities, but not focusing solely on them). The term “learners” is not meant only for children; Because the Barrier-Free School system adopts the “lifelong learning” approach instead of focusing only on the compulsory education period; It is understood that the “Accessibility Guide” MCHSR (2020), prepared by the Ministry of Family, Labor and Social Services, General Directorate of Services for the Disabled and the Elderly, continues to provide children, disabled and gender-sensitive construction works and education accessibility of schools at all levels. Primary School Education Program (İYEP) was developed for many children who could not achieve basic literacy and mathematics learning outcomes in 3rd and 4th grade. Each year, both Turkish and refugee children benefit from this program all across Turkey (UNICEF, 2017).

Within the scope of substantially increasing the number of scholarship students, including vocational education, technical, engineering and scientific programs; In Turkey 1992 “Great Student Project” launched, also from 2012 Overseas Turks Head (MDO) coordinated the “Turkey Scholarships” in many countries in the world thanks to the ongoing project after student studying in Turkey country, turning both their serve the people is building a bridge of friendship between both countries and Turkey (Ozturk, 2014). Turkey already 107 thousand from 180 countries, 948 international students are studying in higher education institutions. Turkey Bursa burslandırıl scope and the number of students who continue their education over 20 thousand. The scholarship from higher education institutions in Turkey or the number of international students who graduate education with their own means seeing more than 150 thousand. Turkey Bursa with more than 160 countries each year about 5 thousand candidates to the scholarship program covered 425 thousand Syrians also Assigned to the possibility of higher education in Turkey in 2016. In this context, 8 thousand people applied for government scholarships in 2011. In 2012. “Turkey Scholarship” of the 131 countries with branding 42 thousand refer to received scholarships, 56 in 2013, 165 countries thousand, 82 thousand in 2014 to 179 countries in 2015 to 175 countries from 114 thousand last year and 120 thousand applications from 164 countries yapılmışd of (Ministry of Culture, 2018). It is aimed to increase the supply of qualified teachers, including through international cooperation for teacher education. Studies on this subject are carried out by the Ministry of National Education.

5. Conclusion

In target 4.1, all girls and boys should complete free, equal and high quality primary and secondary education, in 4.2. Similarly, trying to provide high access to preschool education and 4.5. In addition to ending gender inequalities in all levels of education, it is observed that stable policies are put forward and tried to be implemented in the education of the disabled, vulnerable children and vulnerable groups to access education. On the other hand, it was seen that there is a need for more specific policies applicable in the relation of world citizenship, cultural diversity, tertiary vocational education and employment in Target 4.7 sustainable development; It is evaluated that if all stakeholders of education are aware of the 2030 agenda targets at a higher level of awareness,

it will contribute to the level of achievement of the targets. TSI, (2019), life satisfaction survey covered the rising educational costs at the beginning of the problems in education services in public schools in Turkey 45%, the quality and the nature and number of training tools of education in schools 29.3%, while the number of students in class approach the school board of the fundamental processes of the school 32,5% The school's heating, cleaning and ambient conditions, and teachers' approach to students is 12.5%; Despite the data reflecting the average efficiency and performance level included in the policy documents, the problems expressed by the stakeholders can be expressed as areas that overshadow the quality of education. According to Şener, (2018); This problem, which is mostly caused by the students, is followed by the problems of finance, program, teachers and politics. The results show similarities in the processes from enrollment to the school in the data of TURKSTAT to the cycle of education costs and the quality of education at school. In Goal 4.1, it is at an accessible level for all girls and boys to complete free, equal and high quality primary and secondary education, to try to provide high access to preschool education and to end gender inequalities in all levels of education.

MEB (2018) stated that each category of the 2023 Education vision document sets targets in line with the 2030 agenda; In the school development model; In line with the goals of the School Development Plans, activities for the individual, academic and social development purposes of children will be monitored, evaluated and supported and improved. With this development model, a sharing-based approach will be adopted at all levels, not competition and competition. That all decisions of the Ministry will be based on data; MEBBİS, E-School, EBA, MEIS, DYS, E-Guidance, E-Non-formal, Open Education systems, E-Personnel, E-Registration, Book Selection, Norm Transactions, Physically Handicapped Inventory, E-graduate, Center Exam Results Data from existing systems will be integrated in an easily accessible Educational Data Warehouse. By Enabling Measurement and Evaluation Methods for Improving Education Quality; It is aimed to create an e-portfolio on the basis of protecting the data of the child, for monitoring, evaluating and improving all developmental areas of children, starting from early childhood education and continuing to higher education levels. It can be said that monitoring data management on a single platform can be beneficial in terms of more systematic and data security. The fact that the age of 5 is compulsory in early childhood education and the introduction of centers, workshops and mobile bus classes in

the context of the spread of community-based early childhood services can be interpreted as new steps to be taken in this category. Beyond the main objectives in the special education category, it is meaningful that the goal of “joint studies with international and national NGOs and institutions on dyslexia, autism and similar issues will be encouraged, new inclusion models will be developed and put into practice” is one of the collaborative studies that are considered to be international within the framework of the UN 2030 agenda. It is seen that stable policies are put forward, practices continue and policies are developed in the education of the disabled, vulnerable children and vulnerable groups to education.

It is considered that all stakeholders of education will be informed about the 2030 agenda targets, increase their awareness levels, and contribute to the achievement of the targets. A similar approach in teacher education is from a perspective that has evolved into an understanding of education everywhere and at any opportunity, by removing the boundaries of learning in terms of adults, with the goal of “face-to-face formal and / or distance education collaborations with universities and NGOs to support the professional development of our teachers and school administrators.” can be mentioned. The fact that professional development programs will be established for our teachers who will provide educational services to the children of our citizens living abroad, besides the teachers gaining international experience and adopting the understanding of world citizenship, the awareness of global goal unity can be created.

The concrete steps of 3-5 years towards the goals included in the 2023 education vision document and the 5-year strategic plan of the MEB covering the years 2019-2023; The difference in qualifications between schools is beginning to close, schools are transformed into a life space where children are happily included, vocational high schools will be transformed into a preferable structure, the test pressure on students will decrease, children will exhibit their new age skills, the sense of professional satisfaction of teachers and school administrators will increase, early childhood education will become widespread. The 2030 agenda includes an optimistic approach towards achieving Goal 4; It makes it necessary to deal with the statistical data in relation to the determination of evidence-based and traceable criteria. According to SBB (2019: 65); The ability of Goal 4 to affect other SDG targets predominates, especially SKA 1 (No Poverty), SKA 2: Zero Hunger, SKA 5: Gender Equality, SDA 9: Industry, Innovation and Infrastructure, SDA 10: Reducing Inequalities and SDG 13:

Climate Since the action has a strong impact on it, there is a bidirectional relationship between SDG 1 and SDA 3: Health and Quality Living and SDG 4, so since the coordination of poverty alleviation and health policies and education policies is of special importance, the relational analysis of the data is It will contribute to the development of policies in the denominator.

One of the strengths is that the unity of vision has been realized at a high level in terms of policy developers and implementers of education. In his research in the category of the disabled, Erten (2019) emphasizes that the biggest responsibility falls on the policy makers, and is valid among the policies for quality education. The Targets of the 2030 Agenda are categorically similar to the 2023 vision targets, however; It can be interpreted that the objectives in the two policy documents contain general expressions, the sub-criteria or activities of the goals, performance indicators, standards and monitoring plan cannot be set at a level to ensure internal consistency, or even this process is postponed. It has been concluded that the goals of the UN to increase the quality of education require the education systems of the countries to be addressed at micro scale.

It has been concluded that more specific applicable policies are needed in sustainable development in the relationship between world citizenship, cultural diversity, third-level vocational education and employment. In addition to the increase in the share of vocational and technical secondary education in general secondary education and the vision for employment, as of 2018, “harmonizing all programs in vocational high schools and vocational training centers where approximately 1.5 million students receive education” with the National Occupational Standards and National Qualifications ”third level employment target can be interpreted as accessible. Eşkinat (2015) emphasizes the necessity of applying policies based on evidence and quality data to count the uncountable ones, reach local data on minorities and implement policies based on evidence and quality data for the implementation results of thousand-year development goals.

Seven sub-categories and 169 criteria under the title of qualified education can be conducted in a regional, national and international comparative manner, studies that address different problem areas within the framework of education processes and the roles and responsibilities of stakeholders, Erika et al. It emphasizes the conclusion that corporate publications do not adequately address this theme, although it has gained importance. Considering national

and international policies in lessons and experiences to be learned from past experiences; Accurate, result-oriented, concrete and evidence-based studies that can reach relational and comparative data should be implemented.

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CHAPTER VI

DESCRIPTIVE ANALYSIS OF THE STUDIES ON THE USE OF INTERNET OF THINGS (IoT) IN EDUCATIONAL ENVIRONMENTS

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1. Introduction

The development of different technologies causes a transformation in educational environments and processes. For example, with the development of information and communication technologies, many new learning teaching models that contain rich content and management systems, expressed in terms such as online learning, virtual learning, and distance learning have emerged. The use of these models has become more and more common in all educational levels, from distance education universities to interactive boards used in classrooms and mobile applications with educational content. In this way, students' opportunity to access, present, and share information has increased considerably. Along with these opportunities, many technologies such as artificial intelligence, robot, 3D, augmented and virtual reality applications, and internet of things (IoT) continue to develop by making significant contributions to both our daily life and learning and teaching processes.

IoT has attracted all the attention as a new technology that has emerged in the field of informatics in recent years. The technology has the potential to bring innovations in both open and distance education and face-to-face education as it affects many fields (Altınpulluk, 2018). IoT is a network of objects formed by devices with sensing, addressing, communication, and data processing capabilities to achieve a common goal (Whitmore, Agarwal & Da Xu, 2015). IoT can integrate all these devices from the network and be managed over the web, providing real-time information sequentially and also allowing interaction with the people using it. With this technology, it is aimed to ensure that all objects around us are connected to the network and to provide access to information anytime and anywhere (Gómez, Huete, Hoyos, Perez & Grigori, 2013).

With IoT technology, any physical measurable quantities, like location, temperature, weight, pulse rate, light intensity, blood pressure, carbon dioxide ratio, humidity, ph. value, hardness, sound intensity, etc., are detected and converted into digital or analog signals. In this transformation phase, these data measured from physical media must be processed. In the processing of this data, RFID (radio frequency identification, radio frequency identification), Zigbee, Infrared, NFC (near field communication), Bluetooth, M-Bus, Modbus, GPRS and GSM, BACnet, LPWAN, Ethernet, power line communication protocols such as carriers, wired and wireless communication infrastructure are used. Small-scale data processing processes are carried out with embedded systems. Large-scale data is stored in cloud computing systems. The data stored here constitute an increasing mass of big data (Gökrem & Bozuklu, 2016).

The use of technology has always created a paradigm change in educational settings and teaching processes. It is expected that innovative technological applications such as IoT will turn this paradigm change further and shape educational processes from start to finish. At this stage, it is unthinkable that IoT technology, which is shown as the leading technology that will shape the future, should not be used in traditional face-to-face education environments, open and distance learning systems (Altınpulluk, 2018). IoT technology; using techniques such as deep learning or machine learning on the data obtained by connecting objects to each other, enables the analysis of students' behavior, determination of their habits, and determination of learning styles. For this reason, it is predicted that IoT technology will be a part of both the creation of education systems and tools and the preparation of education programs for students to learn (Öztemel, 2018).

Although IoT technology has the potential to shape the future and reshape the educational processes, the potential for use of this technology in educational environments has not been revealed in all aspects. IoT technology is widely used in healthcare (O'Connor, Rowan, Lynch & Heavin, 2017), transportation (Sherly & Somasundareswari, 2015), industry (Swain, Santamanyu, & Senapati, 2017), and smart homes (Santoso & Vun, 2015), but it has limited use in educational environments. However, there are very few studies to classify the studies made for the use of IoT technology in educational environments (Kassab, DeFranco & Laplante, 2019; Fernández-Caramés & Fraga-Lamas; 2019). Therefore, there is still a lack of holistic and consistent views on what is known about the use of IoT in educational environments (Kassab, DeFranco & Laplante, 2019). Considering that there is an ever-increasing number of studies, it seems that such studies should be constantly updated. For this reason, it is important to reveal the areas in which IoT technology is used in educational environments and the advantages and disadvantages of this technology both in terms of understanding the current situation and guiding future studies.

In this study, academic studies on the use of IoT technology in educational environments have been examined and the areas of use, hardware, technology, advantages, and disadvantages are discussed.

2. Research Methods

In determining the research problem, existing studies are scanned, the problems encountered during the implementation phase are determined and a research problem or subject is determined accordingly. While determining the research problem, feasibility and importance should be taken into consideration. Adequate preliminary research should be conducted, as the correct determination of the problem will directly affect other stages (Yıldırım & Şimşek, 2008). How IoT technology is used in educational environments is the main subject of this research.

The research question is the transformed version of the research subject. The research question is determined in light of the information obtained from the theoretical background. Therefore, the research question constitutes the boundaries of the theoretical background (Yıldırım & Şimşek, 2008). This research, which examines the studies on the use of IoT technology in educational environments, was carried out using the descriptive data analysis method, one

of the qualitative analysis methods, and the answers to the following questions were sought:

- (a) How can the usage areas of IoT technology in educational environments be classified?
- (b) Which equipment and technologies have been used to work on the use of IoT technology in educational environments?
- (c) What are the advantages and disadvantages of using IoT technology in educational environments?

2.1 Data Collection Tools

In the study, the data were collected using the “Publication Classification Form”, which includes descriptive information about the identity of the article, the subject of the article, discipline area, data collection tools, method, sample, and data analysis methods developed by Sözbilir, Kutu, and Yaşar (2012). During electronic scanning, attention has been paid to the fact that it is a peer-reviewed journal and that it includes studies for the use of IoT technology in educational environments. For this purpose, Eric, which is an important index in the field of educational sciences, and Ulakbim databases were used together with the Web of Science database to access national research, and the full-text articles accessed as a result of this search were examined.

2.2 Study Search and Selection Criteria

The studies determined during the scanning were examined in detail by taking the following criteria into account. Scanning resources and scanning conditions for data collection are summarized in Table 1:

Table 1: Scan Sources and Query Conditions

Electronic databases	Web of Science, Eric, Ulakbim
Searched items	Journal, conference papers
Language	English
Search applied on	Full text - Use of IoT technology for educational purposes
Publication period	From January 2010 to December 2020

2.3 Data Analysis

In this study, the descriptive data analysis method, one of the qualitative research types, was used to analyze the data. In descriptive data analysis, the data are classified, summarized, and interpreted according to the determined themes

(Karataş, 2015). Descriptive analysis is used to process data that does not require in-depth analysis (Yıldırım & Şimşek, 2008). Data that are similar and related to each other are identified, combined and interpreted (Altunışık, Coşkun, Bayraktaroğlu, & Yıldırım, 2010). This study, it is aimed to classify, summarize and interpret how IoT technology is used in educational environments.

Determining the trend of the studies conducted by the classification process of studies contributes to obtaining more comprehensive and qualified results in future studies (Göktaş et al., 2012). In the classification of the studies, it is aimed to define the data and reveal the facts hidden in the data (Yıldırım & Şimşek, 2008). The process performed to make the data in the studies suitable for study and to be understood is called coding (Çıkrıkçı & Erzen, 2016). In this study, firstly, coding was made using the publication classification form, and themes for the studies were obtained in this context. In the next stage, the data were arranged and the themes for the use of IoT technology in educational environments were classified and the findings obtained were interpreted.

2.4 Limitations

In the study, the study of full-text articles and papers accessed in Web of Science, Eric, and Ulakbim databases and classification of the usage areas of IoT technology in educational environments are the limitations of the research.

3. Usage Scenarios of IoT Technology in Educational Environments

As a result of the search made in Web of Science, Eric, and Ulakbim databases for the use of IoT technology in educational environments, a total of 422 studies, 210 articles, and 212 papers, were reached. The number of studies and study type according to databases are given in Table 2:

Table 2: Electronic Databases, Number of Studies and Type of Study

Type of Study	Web of Science	Ulakbim	Eric	Total
Journal	37	152	21	210
Conference Papers	134	78	-	212
Total	171	230	21	422

The following steps were taken in the process of reviewing these studies:

Step 1- Identifying and organizing studies taken from electronic databases (210 articles and 212 papers, 422 studies)

Step 2- Removal of repetitive studies (150 articles and 182 papers remained, 332 studies)

Step 3- Removal of studies that do not have full access (149 articles and 150 papers left, 299 studies in total)

The distribution of the studies accessed for the use of IoT technology in educational environments by years and study types is given in Table 3:

Table 3: Distribution of the Studies on the Use of IoT Technology in Educational Environments by Years and Types of Studies

Yearwise distribution of selected studies	Frequency (Journal)	Percent (Journal)	Frequency (Conference Papers)	Percent (Conference Papers)
2010-2015	5	3,36	22	14,67
2016	4	2,68	14	9,33
2017	17	11,41	29	19,33
2018	20	13,42	30	20
2019	24	16,11	22	14,67
2020	79	53,02	33	22
Total	149	100,00	150	100,00

When the publication years of the studies on the use of IoT technology in educational environments are examined, the current studies consist of 149 articles and 150 conference papers.

3.1 Findings Regarding the Classification of Usage Areas of IoT Technology in Educational Environments

As a result of the analysis of existing studies, the classification made for how IoT technology is used in educational environments is given in Table 4:

Table 4: IoT Application Areas and Usage in Educational Environments

IoT Application Areas	Usage of IoT in Educational Environments
Smart Transportation Systems and Object Tracking	<ul style="list-style-type: none"> • Smart School Bus and Student Tracking Systems
Monitoring Systems	<ul style="list-style-type: none"> • Student Attendance Systems
Regulation of Physical Conditions	<ul style="list-style-type: none"> • Design of Physical Conditions in Distance and Traditional Education Environments • Smart Museum • Smart Laboratory, Smart Campuses and Smart Universities

<p>Determining the Situation of Students</p>	<ul style="list-style-type: none"> • Determination of Students' Situation (physiological, psychological and cognitive states) • Monitoring cognitive load information • Monitoring attention levels • Health data monitoring
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The current studies on how IoT technology is used in educational environments are classified and summarized below.

3.1.1 Smart Transportation Systems and Object Tracking

One of the areas where IoT technology is frequently used is smart transportation systems. When the studies on smart transportation systems and object tracking in educational environments are examined, it is seen that wireless communication systems (RFID, GSM, GPRS, GPS) and usually RFID card readers and beacons using Bluetooth low energy (Bluetooth low energy, BLE) technology are widely used in school bus monitoring and student tracking systems.

Raj & Sankar (2017) developed an IoT-based smart school bus application using RFID card readers and GPS wireless communication system. ESP8266 microcontroller, Ublox 6M GPS module, and MFRC522 RFID reader were used in the study. With the ESP8266 microcontroller, a remote server is connected over WiFi. While the Ublox 6M GPS module is used to find the current geographical coordinates of the location of the vehicle and the speed it travels, the MFRC522 RFID reader allows the identification of the RFID tags to be read. The system uses ESP8266 to upload information from peripherals to a database on the webserver. Information can be accessed by parents via a mobile application, which helps them monitor their services effectively. The school administration can also access the app to ensure student safety and to contact a driver or a parent. The application also ensures that the administration is informed about emergencies or complaints.

In a similar study using an RFID card reader, an IoT-based system has been developed to increase the safety of students. A combination of RFID, GPS, GSM, and GPRS technologies are used in this service application. By following the main steps of the students to school and home, it is estimated using a classification algorithm when children leave school and when they will reach their homes. Thanks to the Android-based service application, parents can constantly monitor the service route and see the arrival estimation time of the service (Jisha,

Jyothindranath & Kumary, 2017). In another study, an IoT-based school bus system was developed using GPS, GPRS, and Telos modules. Telos is an ultra-low-power wireless module for use in sensor networks, monitoring applications, and rapid application prototyping. Telos takes advantage of industry standards such as USB and IEEE 802.15.4 to work seamlessly with other devices. With this school bus system, it is aimed to solve many problems in security management and help us react appropriately to unexpected emergencies (Xu, Jiang, Yan & Xiong, 2011). A similar study presents the design and implementation of an IoT-based system that allows parents, schools, and regulators to monitor comfort and safety conditions within a school bus in real-time. In the operation of the system, there is an RFID reader in each service, and each student is given an RFID card. When a student enters or leaves the service, it is recorded with a date and time stamp using the Arduino microcontroller. Smart education is an important component of smart cities, and it is emphasized that IoT technology can be used to improve many factors that can affect the education quality of children outside the classroom (Badawy, Elhakim, Abdulhmeed & Zualkernan, 2016).

There are many new technologies based on BLE technology and many devices using this technology. One of these new technologies is Beacon technology. Beacon technology provides location information. Access to location information can be achieved with BLE signals emitted by a device using this technology (Gülağız, Göz, Şahin, Albayrak & Kavak, 2016). Another study using BLE technology, it is aimed to develop an IoT-based school service system for smart schools. In the study, a real-time mobile application was developed using BLE technology, where the location information and passenger lists of the vehicle can be accessed by parents (Pratama, Zainudin & Yuliana, 2017).

Beacon devices with BLE technology can be operated on IOS and Android operating systems, and are widely used as a product of IoT technology due to their low cost and energy consumption. As mobile devices approach these pointer devices, mobile applications can be run automatically. As a result, it is possible to develop many applications with these pointer devices depending on the distance proximity. These systems, it is aimed to make transportation more reliable and to follow vehicles and pedestrians.

Using IoT technology, objects can be tracked and their locations can be determined. At school buses, the attendance of the students is done manually with the instruction of the assistant staff. Since many services do not have an authorized person to perform this procedure, attendance is not taken from students at all. Even

if this situation is completely ignored, it is stated that the importance of the use of IoT technology in transportation systems cannot be ignored when situations that may endanger the safety of students (Çelik, Küçük & Bayıldı, 2018).

3.1.2 Monitoring Systems

Another potential use of IoT technology in education is the student attendance system within the scope of monitoring systems. Student attendance is mostly done by taking the signatures of the students. As the class size increases, the duration of the polling process increases. For this reason, it is seen that studies have been carried out to automate polling systems by using technologies such as various RFID card systems, NFCs, or a pointer device.

Noguchi, Niibori, Zhou & Kamada (2015) developed a student attendance system using a pointer with BLE technology. In the developed system, students can register to the system from their smartphones. Students are authorized by the teacher and when an unauthorized student enters the classroom, they can be noticed on the phone. Thanks to this system, it is reported that polling can be taken easily and the copy can be prevented. Similarly, in another study, the BLE pointer device (beacon) was used in the student attendance system. In the automatic student attendance system, students can sign in their place only once, and the pointer must be at most fifteen meters from the device for the safe operation of the system (Hoshi, Ishizuka, Kobayashi & Minamikawa, 2017).

One of the equipment used in automatic student attendance systems is RFID card reading systems. Konatham, Chalasani, Kulkarni & El Taeib (2016) used RFID card reading system for a real-time attendance system in their studies. RFID card reading systems have been placed at the classroom entrances and a system has been developed that automatically takes the attendance process with the help of cards distributed to each student. In a similar study, an RFID card reading system was used to reduce the administrative burden and partially automate the monitoring of student attendance. In addition to the usual features of similar systems for student attendance, the developed system includes features that enable integration with external systems, recording the necessary data on teachers' work in their classrooms, and preparing periodic reports on their work (Mijić, Bjelica, Durutović & Ljubojević, 2019). In these systems, every student must have an RFID card. The disadvantages of the system are the corruption of the RFID card, the forgetting of the student's card, the ability to read another student's card, and its cost.

3.1.3 Regulation of Physical Conditions

Another area where IoT technology is used in education is the studies on the regulation of physical conditions of educational environments. In educational environments, the effect of physical variables such as temperature, sound and light intensity, carbon dioxide ratio, humidity, ph value on students' academic achievement, attitude, motivation, and attention perception can be monitored with IoT technology. When studies on the use of this technology in educational environments are examined; It has been reported to be used in sub-areas such as smart museum (Alletto et al, 2015), smart laboratory (Poongothai, Subramanian & Rajeswari, 2018), smart campus (Zhamanov, Sakhiyeva, Suliyev & Kaldykulova, 2017), smart university (Sharma & Suryakanthi, 2015), in the design of physical conditions in face-to-face and distance education environments (Palma, Agudo, Sánchez & Macías, 2014).

In a study examining the parameters in the physical environment that affect the focus of students during the lesson using IoT technology, carbon dioxide ratio, temperature, air pressure, humidity, noise level and the voice of the instructor were measured with sensors. It has been reported that the variable that affects students' focus the most is the noise level (Uzelac, Gligoric & Krco, 2015). In a similar study, a web application that shows the occupancy rate of classes was developed using NFC and RFID. Using NFC in the system, information can be accessed and information shared via RFID. In the system, a transmitter / receiver access control was created for each class and the data were uploaded to the cloud. The occupancy rate of the classes can be seen on the web application, and the monitoring and control of the classes can be done through this application (Palma et al, 2014). Another study on designing physical conditions in the classroom was done by Singh, Chitransh & Tanwar (2016). In this study, an IoT application that can control the brightness intensity of the lamp by measuring the brightness of the lamp in the classroom and accessible online has been developed. In this application, according to the intensity of the light in the classroom, notifications are sent to the smart device of the teacher to turn on or off the artificial lights. As a result, the physical conditions in the learning environments are defined as the third eye after the teacher and the student, and it is stated that it explains 16% of the difference in the academic success of the students. Basic infrastructural features such as air quality, lighting, temperature,

color, complexity, and flexibility are listed as factors that improve learning outcomes (Barrett, Davies, Zhang & Barrett, 2015).

3.1.4 Determination of Physiological, Psychological and Cognitive Status of Students

IoT technology is also used to determine the physiological, psychological, and cognitive states of students in educational environments. With the use of IoT technology in educational environments, students' body shape, voice information, eye movements, gestures, eye size, pulse, keyboard movements, number of words typed, mouse movements, verbal and visual information can be recorded. By analyzing this recorded student information, it is possible to determine the status of students in the course (Caballé, 2015). Cognitive load is an important parameter in personal training and usability tests. In an IoT technology-based study, using cloud-connected, low-cost, and low-resolution EEG devices, students' cognitive load information was monitored and feedback was provided to students on these characteristics (Sinharay, Chatterjee, & Pal, 2015). In another application, an EEG device was used to solve the problem of the student's decrease in active interest after a while during online education. In the study, data were collected by measuring EEG signals to calculate the attention levels of the students. These recorded data are analyzed in real-time, and feedback is provided to users to increase the effectiveness in online learning (Sharma et al, 2019). In another study, data were collected from medical and IoT devices to monitor the health status of 182 students. An IoT-based student health monitoring model is proposed for analyzing the collected data and predicting potential illnesses of students (Verma et al, 2018). On the other hand, the continuous monitoring of teachers and students, the ability to record movements, cognitive, physical, and health data by using sensors to determine the physical conditions of teachers and students, brings up the issues of security of personal data and privacy of private life. For this reason, it is discussed how IoT will ensure the security of these data.

3.2 Findings Regarding Hardware Used in IoT Technology in Educational Environments

Existing studies have been examined to determine which hardware and technologies are used for the use of IoT technology in educational environments, and the findings are given in Table 5.

Table 5: Technology and Hardware in Using IoT in Educational Environments

Communication Technologies	Sensors	Hardware	Software	Devices
<ul style="list-style-type: none"> • WiFi • Bluetooth • RFID • NFC • IEEE 802.15.4 • 4G LTE • GSM, • GPS, • GPRS etc. wireless communication technologies 	<ul style="list-style-type: none"> • Gyroscope • Humidity, • Pressure, • Movement, • Pulse, • Temperature • Carbon dioxide-ratio, • Ph. etc. 	<ul style="list-style-type: none"> • Microcontroller cards • Arduino • tinyLab, • Intel Galileo • Netduino etc. • Minicomputer cards • Raspberry Pi • RFID card readers • BLE pointer device 	<ul style="list-style-type: none"> • Cloud Tech. • Android • TinyOS • LiteOS • PiOS 	<ul style="list-style-type: none"> • Mobile devices (tablet, smartphone, PDA) • Smart devices • Computer

He, Bukralia & Huang (2017) divided the technologies used in IoT into three groups, including communication technologies (Wifi, Zigbee, Bluetooth, RFID, 4G LTE, etc.), embedded operations (microcontrollers, microprocessors, network processors), and detection (gyroscope, pressure, temperature, humidity, etc.) When the studies on the use of IoT technology in educational environments were examined, it was determined that RFID, NFC, Bluetooth, and WiFi wireless communication technologies were mostly used (Jisha et al, 2017; Palma et al, 2014; Pratama et al, 2017). BLE pointer device (Noguchi et al, 2015; Hoshi et al, 2017) and RFID card readers (Mijić et al, 2019; Raj & Sankar, 2017) are particularly widely used in intelligent transportation and object tracking systems. However, it is seen that it is also used in the regulation of student attendance systems and physical conditions. Sensors such as motion, pulse, temperature, pressure, EEG, etc. convert the information they receive from real life into electrical signals and send them to control cards. These sensors are frequently used in regulating physical conditions and in determining the situation of students (Singh et al, 2016; Sinharay et al, 2015). By using sensors in educational environments, information about teachers, students, and the physical environment can be recorded instantly. The recorded information is transferred to microcontroller cards (Arduino, tinyLab, netduino, etc.) or minicomputer cards (Raspberry). In this way, students can be monitored and interacted remotely or closely, and virtual education environments such as smart laboratories, smart campuses, and smart universities can be created with this equipment. IoT-based applications developed with mobile devices (tablet, smartphone, PDA) can communicate and interact.

3.3 Findings Regarding the Advantages and Disadvantages of Using IoT Technology in Education Environments

With the use of IoT technology in educational environments, concepts such as smart education, smart learning environments, smart university, smart campus, smart laboratories, and smart classrooms have emerged. Smart educational environments will be widely used in education between five and ten years (Uskov, Pandey, Bakken & Margapuri, 2016). With the creation of smart education environments, students have the opportunity to learn at home, in the library, in the museum, on the street, i.e., without being dependent on any place. The increase in the use of sensors in educational environments has led to an increase in information, making it easier to share, access, and spread information. With sensors that can be integrated into these smart educational environments, it is possible to determine the physiological, psychological, and cognitive states of students and teachers and to analyze how these data affect complex learning processes. The findings are given in Table 6.

Table 6: Advantages and Disadvantages of Using IoT in Education Environments

IoT Application Areas	Advantages	Disadvantages
Smart Transportation Systems and Object Tracking	<ul style="list-style-type: none"> • Tracking school buses and making them safer • Providing faster school-parent communication 	<ul style="list-style-type: none"> • Cost • RFID card corruption, • The student can forget his / her card
Monitoring Systems	<ul style="list-style-type: none"> • Easing the student attendance process 	<ul style="list-style-type: none"> • Another student's card can be read
Regulation of Physical Conditions	<ul style="list-style-type: none"> • Determining the effects of physical variables on learning outcomes • Creating smart education environments 	<ul style="list-style-type: none"> • Security vulnerabilities • The necessity of a large and wide network infrastructure in the creation of smart education environments
Determining the Situation of Students	<ul style="list-style-type: none"> • Adaptation of physiological, psychological and cognitive situations to learning environments • Real-time recording of student information • Determining the status of the students in the course • Opportunity to learn more 	<ul style="list-style-type: none"> • Privacy of personal data and private life • Insufficient infrastructure, • Lack of information from users • Difficulty in storing huge amounts of big data • Difficulty analyzing big data

When Table 6 is examined, the advantages vary according to the application areas. Cost, storage of recorded big data, insufficiency of infrastructure, and difficulties in ensuring the security of big data are important disadvantages. Considering that RFID and BLE pointer devices are frequently used in smart transportation and tracking systems, the disadvantage of these systems is that these cards are damaged, students can forget their cards, other students can read their cards, and the cost of these cards. In these systems, every student must have a pointer device. The BLE pointer works depending on the proximity of the distance. Field control cannot be determined within sharp limits, since it works with the pointer devices depending on the distance proximity. For this reason, a student in the next class may appear in the course attendance. Since field control cannot be determined within sharp limits despite not being in the class, students who are close to the classroom may pretend to be in the class. Therefore, in systems developed using the BLE pointer device, field control cannot be determined within clear boundaries, which can be considered as the disadvantage of these polling or monitoring systems. When using IoT technology in educational environments, students and teachers can be monitored and their every move can be recorded at any time. For this reason, it is controversial whether the privacy of personal data and private life can be fully protected. In the light of the studies examined, although there are some limitations and problems related to IoT, it is thought that this technology will completely change traditional education environments and reshape according to IoT technology with the use of techniques such as deep learning or machine learning. Finally, the lack of infrastructure, security vulnerabilities that may occur during the communication of objects with each other, and most importantly, teachers and students not having enough knowledge about the use of IoT technology can be listed as the difficulties that can be encountered in the use of this technology in educational environments.

4. Discussion and Conclusion

As a technology revolution, it is predicted that IoT will accelerate this development and growth and will change the lifestyle of human beings. In this context, IoT develops with the principle of connection with everybody, every object, and finds an important place in internet technologies. IoT technology has the potential to change the social structure by making life easier, increasing living standards, increasing efficiency, and contributing to economies (Gündüz

& Daş, 2018). IoT technology can eliminate physical location, geography, language, and economic reasons that pose obstacles to education, and learning environments can be made more accessible and flexible (Fazla and Gezgin, 2019). Current studies on the application of IoT technology in educational environments can be categorized under four headings: a) smart transportation systems and object tracking, b) monitoring systems, c) regulation of physical conditions, and d) determining the physical, psychological and cognitive states of students. Although the number of studies on the use of this technology in educational settings is limited, it has been determined that the number of studies carried out is increasing every year.

When the smart transportation and object tracking application area of IoT technology in educational environments is examined, were examined, it was found that there were generally intense studies involving smart school bus systems (Pratama et al, 2017; Jisha et al, 2017; Xu et al, 2011). When the regulation of physical conditions and determining the situation of students in the course were examined, it was seen that information about teachers, students, and physical variables in the educational environment was collected. These studies were divided into two as determining the status of teachers and students in the course (Caballé, 2015; Sinharay et al, 2015; Sharma & Suryakanthi, 2015) and determining physical variables (Alletto et al, 2015; Poongothai et al, 2018). Studies show that physical variables affect students' academic achievement, attitude, motivation, and attention levels (Uzelac et al, 2015; Barrett et al, 2015). These physical variables and their effect rates on learning processes differ according to studies. For example, Barrett et al. (2015) suggested that the physical variable that affects the learning process the most is light, Uzelac et al. (2015) argued that sounds mostly affect the learning process. In designing a suitable education environment, the temperature values are 20-25 0C, the air quality is 3-7 m3 clean air per person, the humidity is 30-60%, the light ratio is 300-500 lux and the sound intensity is 30-60 dB (Şimşek, 2009). With the use of IoT technology in educational environments, physical conditions in educational environments can be easily monitored and fixed between the desired values. In addition, with smart devices and sensors placed in educational environments, students' learning movements can be monitored and analyzes can be made in line with the needs of students in smart education environments.

Even though IoT is still in its infancy, it has the potential to shape the future by integrating with disciplines related to artificial intelligence (Altınpulluk,

2018). IoT technology is frequently used in the creation of smart education environments. Considering the necessity of student-centered, customizable, and adaptable smart systems in educational environments, smart campuses, smart laboratories, and smart classrooms can be integrated into the existing education system (Sharma & Suryakanthi, 2015; Poongothai et al, 2018; Zhamanov et al, 2017).

When other data obtained by analyzing existing studies are examined, it is reported that basic infrastructural features such as air quality, temperature, color, lighting, complexity, and flexibility affect students' academic achievements and are factors that improve learning outcomes. When the trends of the studies related to the application of IoT technologies in educational environments are examined, the current studies on how it affects the learning process of students are limited (Sharma et al, 2019).

For more qualified and comprehensive studies in future studies, it can be recommended to conduct studies on the use of IoT technology in educational environments and to examine the effect of students' academic achievements.

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CHAPTER VII

INFORMATION AND COMMUNICATION TECHNOLOGIES IN THE PRE-SCHOOL PERIOD

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1. Introduction

With the technological advances in the 21st Century, which is considered the information age, a great transformation took place. Modern methods of integration with technology are used in developed societies rather than traditional methods in areas, such as industry, agriculture, healthcare, security, transportation, trade, urbanization, communication, and education. Information and Communication Technologies (ICT), which has the greatest part in these developments, also has an important function in facilitating human life, sharing the existing information very quickly, strengthening interpersonal communication, and achieving higher efficiency with less effort.

The usage rates of ICT tools such as computers, the internet, smartphones, tablets, and televisions, which offer opportunities without the restriction of time and space with mobile use, are increasing with each passing day. However, the effects of this increased usage on the development of individuals have become an important study field. It is now discussed in which direction technology affects the developments of children in the preschool period, which is considered the most critical stage of human life in terms of development. It is reported in recent scientific studies that ICT is used extensively in the 0-6 age period (Cengiz Saltuk & Erciyes,

2020; Akın, 2019). Despite the researchers who argue that ICT supports the physical, cognitive, social, and emotional development of preschool children, some authors draw attention to their harms (Taş & Sevinç, 2019; Kızıldağ & Ertör, 2018).

Topics, such as the use of ICT in the preschool period, its effects on children's developmental periods, its use in preschool education, and the role of the family in the use of technology were discussed in the present study in the light of previous study reports.

2. Preschool Period

The preschool period is a critical process starting with the birth of the individual and continuing until primary school. In this process, in which basic knowledge and skills are acquired and development is very rapid, all stakeholders constituting the social environment of the child, parents especially have important duties and responsibilities. These duties and responsibilities include covering the needs such as care, nutrition, protection, love, attachment, games, sharing, and socialization. The knowledge, skills, and habits acquired in the preschool period affect the child's life and success in adulthood (Zembat, 2010).

There are studies in the literature reporting that preschool education affects the social, emotional, self-care, mental, language, and physical development of the child positively. In addition, it is emphasized that preschool life is vital in the acquisition and development of important life skills, such as creativity, communication, critical thinking, decision making, and problem-solving. According to Can Yaşar and Aral (2011), pre-school education effects the creative skills of preschool children. It was determined in other studies that the education received in the preschool period is important for the development of social skills (Kapıkıran Acun, Ivrendi & Adak, 2006; Yılmaz & Tepeli, 2013; Elibol Gültekin, 2008).

No doubt, the child's most natural means of learning and having fun are games in the preschool period. Games constitute a rehearsal of everyday life and are among the activities enjoyed most by children. It is possible in this period to learn, discover, take responsibility, learn rules, socialize, wait in queues, express feelings, and thoughts, be creative, solve problems, and develop communication skills at the desired level when the child plays games. However, there are some drawbacks preventing preschool children from playing natural games freely with their peers outside the house. It can be argued that apartment culture, traffic, narrowing of playgrounds, alienation, security concerns, and technological advances that have increased with urbanization

are among these drawbacks. The shrinking family structure and the loneliness caused by the working of both parents also prevent the child from playing more games. Preschool education minimizes possible risks of these drawbacks and is lifeline support for the healthy development of the child. Because the child meets his peers in preschool education institutions playing more games, performing various activities under the guidance of a teacher, and in this way, becomes socialized.

3. Information and Communication Technologies

ICT covers all devices and applications in which communication is performed with mobile phones, computers, televisions, radios, the internet, satellite systems, video conferencing, distance education programs, and network hardware and software (Rouse, 2005). According to the current definition made by UNESCO (2019), “ICT is a variety of technological means and resources used to create, store, transmit and share information”. According to this definition, ICT covers technologies that are used for live broadcasting (TV, radio, and internet broadcasting), computer, internet (email, blogs, and websites), telephone systems (satellite, fixed and mobile, video conferencing, etc.), and recorded broadcast technologies (recorder, audio, and video player and podcasts) (Gül, 2019). These electronic devices, applications, and software are increasingly becoming diversified, and have become one of the most basic information and communication needs of each house. The types of ICT are covered in a wide range in the literature. Figure 1 shows the types of ICT.

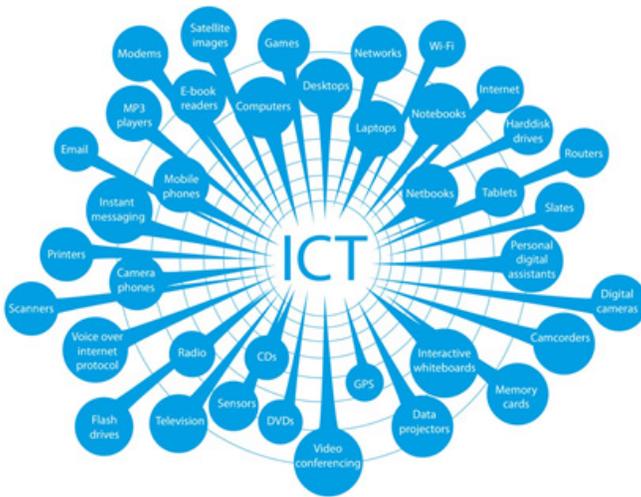


Figure 1: Types of Information and Communication Technologies

Source: “ICT Transforming Education-A Regional Guide” by Anderson (2010)

Since ICT is a rapidly-developing phenomenon, these definitions and classifications may lose their validity in the future. It is possible to say that technologies such as CDs, DVDs, cassette players and tube screens, which used to be very functional, are not in demand today. Devices and applications that are currently being used effectively may lose their importance in the future. In the period we live in, computer hardware is getting smaller and there is an increase in the use of digital touch screens and wireless devices. Besides, computers, the internet, programs, and software are integrated into many devices such as phones, tablets and televisions. Most of the work and operations that can be done on the computer are done with these devices.

4. Use of ICT in Preschool Period

Adults use ICT extensively for purposes such as business, banking, education, shopping, entertainment, and communication for most of the day. Generation Z children are born in an environment with more than one technological device and grow up by taking their parents' or siblings' use of technology as an example. Photos of newborns are taken and music is played for them to have fun or relax. Therefore, it is quite normal for them to be curious about these technological devices and applications. Today, it is impossible to imagine children who are completely isolated from ICT.

4.1 Most-Commonly Used ICT Tools in the Preschool Period

When the studies for the use of ICT in the preschool period are examined it is seen that children aged 0-6 prefer tools such as smartphones, tablets, televisions, computers, and the internet more than others (Cengiz Saltuk & Erciyes, 2020; Zehir, Zehir, Ağgül Yalçın & Yalçın, 2020; Akın, 2019). These tools are used more by children as they include activities such as digital games, cartoons, videos, music, and photography that appeal to children's interests.

4.1.1 Smartphones and Tablets

Today, mobile phones function more like a computer in addition to their traditional functions such as calling and messaging due to providing large-scale multimedia facilities. These devices, which house a mobile operating system, can be used for many different purposes such as voice and video communication, online messaging, playing games, watching videos, listening to music, using

social media, and doing research, and can offer an application opportunity for almost any interest. It is also one of the ICT tools that facilitate social life with many applications such as a camera, alarm clock, calculator, calendar, document tools, mobile banking, flashlight, e-book, e-ticket, e-mail, voice recording, etc.

The rate of smartphone use in Turkey is increasing every day. According to the research made by Turkey Statistics Institute [TurkStat] (2020) on Information and Communication Technologies Usage in Households, the smartphone usage rate, which was 53% in 2004 in Turkey, reached 98.7% in 2019. Having at least one smartphone in every home increases the use of smartphones by children. Another aspect that increases the usage rate is that smartphones can be used in all kinds of places and applications for children can be installed instantly. Smartphones are the most frequently used tools for social media applications. These apps contain thousands of channels and videos that broadcast child-centered videos and broadcast live feeds. Even the cartoon channels broadcasting on TV broadcast videos on these platforms. Thus, the child can watch cartoons outside the room where the television is located and the time spent watching cartoons on the phone increases. Another important reason why children love smartphones is digital games. Children can easily find virtual games suitable for their ages, interests, and even gender in media application markets such as Apple Store and Google Play Store. For all these reasons, the use of smartphones increases in the preschool period.

Having a function between a smartphone and a PC, tablets are mobile communication tools that can be used without the need for computer hardware such as a mouse and keyboard. Many features offered by smartphones and PCs are similar to tablets, and other touch screen devices. Children can carry out many activities they do on smartphones using tablets. However, while smartphones are devices belonging to parents, tablets can belong to children. Additionally, one of the differences that distinguish tablets from smartphones is that these devices can be used for educational purposes.

According to the research conducted by Kızıldaş and Ertör (2018) on the smartphone addiction of children attending pre-school education, children mostly use smartphones for playing games, watching videos/cartoons, looking at photos, taking photos, and drawing pictures. Families, on the other hand, give their smartphones to the child when they have an urgent job, when the child is crying, when they are spoon-feeding the child, and for them to play games. Moreover, it is stated that most children use phones every day and this poses

a risk for phone addiction. According to the research conducted by Ateş and Durmuşoğlu Saltalı (2019) to investigate the use of smartphones and tablets by preschool children, children mostly use tablets and smartphones to perform game-related, entertainment, educational and artistic activities. The reasons why families direct their children to these devices are to reward their positive behaviors, to control their negative behaviors, to distract them, and to have them used as educational tools.

4.1.2 Television

Television is one of the most used ICT tools by both adults and children. Today, there is at least one television in almost every home and there are dozens of television channels that appeal to every age group. It attracts the attention of even children under the age of one, as sound and image are clearly perceived on TVs. Although the rate of children using smartphones, tablets, and computers has increased, the rate of watching television for children is still very high. Another situation that increases the rate of watching TV for children is that televisions can be connected to the internet. The internet connection allows the child to watch any program or video repeatedly at any time.

TRT Çocuk, Minika Çocuk, Minika Go, Disney Channel and Cartoon Network channels, which broadcasting child-centered content via satellite in Turkey, are among the most-watched television channels (TIAK, 2021). Radio and Television Supreme Council (RTÜK), which controls all the television broadcasts in Turkey, demand that the animation named “Come on Children, it’s bedtime [Haydi Çocuklar Uykuya]” be broadcasted on all national channels after 21:30 and children be reminded of the bedtime to reduce the time children spend in front of the TV and to ensure that they go to sleep early. However, it is seen that cartoon channels broadcast 24 hours a day. The fact that cartoon channels continue to broadcast for children after this time causes children to watch television until very late hours.

In a study conducted by Oral and Tekin (2019) on TV watching habits of children aged 3-6, it is seen that children start watching television from a very early age, and most of them watch TV for at least 2 hours a day. Bayrak Çelik (2020) examined television-watching behaviors of preschool children according to parents’ opinions. Accordingly, it is stated that children are willing to watch television, spend most of their time in front of the television rather than playing games, and watch programs that are not suitable for their age. According to the

Academic Pediatric Association [APA] (2001), children watch television for an average of 16-17 hours a week. It is emphasized that this period should be 1-2 hours a day and if the child is not restricted from watching television, he/she may become addicted in the future.

The television watching time of the child varies according to variables such as the education level of the parents, the age of the child, the income of the family, and the child's restriction status (Yeşilbağ, 2011). The television watching time of the mother and father also affects the television watching time of the child. The study of Çakar (2019) on preschool children and their parents confirms this view. Accordingly, a positive correlation was found between the television watching time of the parents and that of the children. Television watching behavior of the child is also affected by the income level of the family. Depending on the income level of the family, participation of the child in sports, educational, social, and cultural activities outside the home may reduce the time spent watching television. Otherwise, television becomes the only means of entertainment for the child as the opportunities offered to the child decrease (Clifford, Gunter & McAleer, 1995).

4.1.3 Computer and Internet

Computer and the internet are among the ICT tools that must be used to carry out tasks through the methods suitable for the needs of the age. Since 2000, the use of computers and the internet has steadily increased both in the business world and in the social life in Turkey. The data of the research conducted by TURKSTAT (2020) confirm this increase. Accordingly, while the rate of portable computers in households in Turkey in 2004 was 0.9%, it rose to 48.7% in 2019; and Internet access in households increased from 7.0% in 2004 to 88.3% in 2019. The rate of owning a desktop computer increased from 10% to 17.6% between these years. The integration of computer technologies into mobile devices, the widespread use of wireless internet, the adoption of educational technologies, the increase in purchasing power, and its use as entertainment tools have played a major role in this increase. Today, mobile devices such as smartphones and tablets have many technologies offered by conventional PCs, making it difficult to make a precise distinction between these devices.

Although not as much as television and mobile communication devices, the computer use of preschool children has increased with the availability of

personal computers in the home environment. The child, who sees that his/her parents use a computer, is interested in using this colorful and mysterious device (Oktay, 2002). Although illiterate, preschool children use computers for purposes such as playing digital games and watching cartoons with the help of the family. According to the study by Özcan (2017), 77.6% of children aged 5-6 years spend their time in front of computers or tablets playing games, 17.2% watching cartoons, and 5.2% listening to music for an average of 2-3 hours a day. Akçay and Özcebe (2012) stated in their study that children aged 4-6 played computer games for a long time.

As can be understood from these studies, preschool children mostly use computers to play games. There are hundreds of online computer games on the internet appealing to the interests of children aged 3-6. Children find the opportunity to play online games for intelligence and attention, animals, colors, numbers, puzzles, patterns, and matching in a few steps with the help of their parents in the internet environment.

5. The Effect of ICT on Development Periods

ICT tools such as smartphones, tablets, computers, the internet, and television are extensively used by children in the preschool period, which is considered to be one of the most important periods of life. It is very difficult for children to be completely isolated from technology in a world that is becoming digital with each passing day. The way this situation affects the social, emotional, cognitive, and language development of children emerges as a current problem. The researches in the literature on this subject were examined and the benefits and harms of ICT in the preschool period were discussed according to the development periods.

5.1 Effect of ICT on Language Development

The development of an individual's mother tongue is a process that starts from the first day of life and develops with the effect of auditory, visual, and tactile stimuli in his/her social environment (Kabadayı, 2009). It can be said that technology is an important factor as well as variables such as genetic, physiological, socio-cultural, socio-economic, and gender-related factors (Shields & Berhman, 2000), which are known to affect the language development process. Sounds, speech, and music coming from television, telephone, or computer are heard even in the first days of life. Parents play lullabies, tales, stories, or music to

their children on the internet. From a very young age, cartoons are watched on these devices and cartoon heroes are imitated. For this reason, it can be said that ICT tools such as television, phone, tablets, and computers are effective in the language development of the child.

When activities such as cartoons, digital games, videos, and music are used consciously, they can develop the child's receptive language and expressive language skills. These activities should support language development and the duration of ICT usage should be supervised by parents. In the study conducted by Linebarger and Walker (2005), the effect of cartoons was examined by observing the language development of 51 children from the 6th to the 30th month. It was observed that cartoons contributed to children's language development when the characters in the cartoons encouraged children to speak, ask questions and use new words. However, it was stated that cartoons containing only dialogues did not affect the language development of the child.

When technological devices and applications are used by children under parental control, they offer important opportunities for second language acquisition. Children find the opportunity to learn the grammatical structure and vocabulary of the foreign language through tablets, smartphones, and personal computers. Thanks to digital learning, they can repeat as much as they wish regardless of place and time, and reinforce it with virtual games. Listening and speaking skills are improved by watching cartoons broadcasted in a foreign language. Therefore, researchers recommend the effective use of technology by children in foreign language acquisition (Kabadayi, 2001; Aslan, 2017).

Children watching TV for a long time every day or using mobile communication tools can negatively affect their language development. Since they are passive listeners in front of these devices for hours, a one-sided communication takes place. However, it is considered important for 0-6-year-old children to communicate effectively with adults and their peers and to ask questions in the face of new situations they encounter. In the study conducted by Özkılıç Kabul (2019), the language development levels of 3-year-old children who watched television for a long time were found to be lower. Accordingly, the level of language development of children who watched television for less than an hour a day was found to be higher than children who watched television for longer periods. If the domestic and foreign programs prepared for children contain content that degenerates the mother tongue and the number of words used in these programs is low, it becomes difficult to speak the language correctly.

Besides, preschool children watching television for more than two hours a day reduces the time they spend communicating with their families. As a result, there are insufficiencies in the effective use of language (Haktanır, 2009). The content of cartoons and videos watched, games played and the music listened through television, tablets, PCs, and smartphones should also be controlled by parents. If these activities include slang and vulgar words, the language development of the child is negatively affected (Ertürk, 2011).

5.2 Effect of ICT on Cognitive Development

Real experiences are very important in the process of getting information on any subject and converting this information into practice. However, there are some difficulties in presenting real experiences to the child. Among these difficulties is the unfavorable physical and social environment of the child for cognitive learning. Technological facilities are used in many learning activities that are desired to be gained in real life. If ICT is used in accordance with its purpose, it is easier to realize mental activities such as concept teaching, cause-effect relationship, classification, matching, comparison, and differentiation through visual and auditory contents prepared for the child, and the child enjoys the learning process. Computer technologies are considered important for the child's individual learning and active participation in the learning process (Kabadayı, 2005).

Children adopt the problem-solving methods of the heroes in the cartoons they watch and apply them in real life. Arslan (2018) examined the inclusion of cognitive skills that will contribute to children's logical thinking in the three most-watched cartoons in the 3-5 age category on TRT Çocuk (TRT Kids) channel. Accordingly, it was determined that the cartoons broadcasted included the skills of establishing part-to-whole relationships, problem-solving, matching, questioning, sorting, classification, counting and predicting.

Video hosting sites such as Youtube, Dailymotion, and Vimeo, which can be accessed with ICT devices, contain a large number of content such as fairy tales, lullabies, songs, and riddles. The fact that children watch this kind of content determined by the families can not only provide fun for them but also support their mental skills. Some games played through mobile communication tools can also support the cognitive development area. There are countless digital games that children aged 3-6 can play on personal computers, smartphones, or

tablets. It is aimed to develop retention, attention development, quick thinking, problem-solving, development of linguistic and mathematical skills with the games such as introducing colors, fruits, vegetables, and animals, matching, pattern finding, puzzles, and classifications.

It is of great importance that all kinds of activities carried out with ICT tools are appropriate for the age and development level of the child, supervised by the families, and used at appropriate time and frequency. With the child being passive in front of the screen for a long time, risks such as adverse effects on brain functions, distraction, and lack of concentration arise.

5.3 Effect of ICT on Social and Emotional Development

The preschool period has vital importance in the field of social and emotional development. It is known that many variables are effective in the formation of social and emotional skills that are required for the individual to express his/her feelings and thoughts and to live a peaceful life with the society s/he is in. Based on some studies conducted in recent years, it can be said that the use of technology is an important variable in the social and emotional development of the child. Studies examining the effects of ICT tools on children's social and emotional development have reached different findings. However, there are more studies in the literature concluding that the use of ICT in the preschool period harms social and emotional development. It is not possible to evaluate ICT as completely harmful or beneficial in the development of social and emotional skills (Akbulut, 2013).

Today, children become more isolated with the shrinking family structure, intensive working conditions, and the effect of urbanization. This isolation is an important factor that increases children's interaction with technology. It can be said that excessive use of ICT tools harms social and emotional skills in this period when children watch cartoons or play virtual games at home instead of playing games with their peers on the street. The study of Özkılıç Kabul (2019) found that 3-year-old children's level of using ICT tools differentiated their social skills. According to the study, children's friendship skills, initial skills, academic support skills, emotional management skills, and general social skills differ significantly in favor of children who do not play with tablets. It was also found that children who used a smartphone for less than an hour a day had a higher level of social skills than children who used a smartphone for more than an hour a day.

The child's using ICT at a level that hinders communication with peers and other individuals in daily life may cause some life skills to be weakened. These skills include effective communication, managing emotions and stress, making decisions, and friendships. Problems in the cartoons watched are often solved by physical force or violence. Negative emotions such as anger, disappointment, and lack of self-confidence may be experienced if the child is influenced by the cartoons s/he watches and fails in the face of similar situations in real life. According to Kesicioğlu (2015), there is a significant difference between daily television watching time and interpersonal problem-solving skills in the preschool period in favor of children who watch less television. In another study, it was stated that as the age of using technological devices decreased, the ability to cope with peer pressure weakened (Özcan, 2018).

Some virtual games played on smartphones, tablets or personal computers contain content based on violence, fear, and competition. Undesirable behaviors such as aggression, anger, and hatred may occur when the child plays such games. However, playing outdoors has a positive relationship with empathy skills and a negative relationship with aggression (Çankaya, 2014). According to Taş and Sevinç (2019), addiction to computer games also reduces empathic tendency. In the study conducted by Omrak (2019), a negative relationship was found between watching television times and using tablets, mobile phones, and computers of preschool children and secure attachment. It is also stated that as the duration of using technological devices increased, emotion regulation skills decreased.

The fact that ICT tools are used under appropriate conditions under the supervision of parents and teachers can support the development of some social and emotional skills of children. Conscious use of ICT tools enables children to communicate with others faster, share their feelings and thoughts, and have fun. Thus, the child's social interaction increases and s/he is motivated during the development of some skills. Thanks to ICT, it is easier to realize abstract learning, which is difficult to gain in the preschool period. Many visual and audio materials prepared for the acquisition of values such as friendship, love, sharing, patience, and responsibility can make it easier for children to internalize these values. It is thought that children will imitate the positive behaviors of the characters who are modeled thanks to the cartoons that aim to teach these themes and are suitable for the age of children.

5.4 Effect of ICT on Physical Development

Physical development is an important process that takes place very rapidly during the prenatal period and infancy and directly affects all other developmental periods. Although heredity is the dominant factor in physical development, some environmental conditions before and after birth are also effective. Adequate and balanced nutrition, an active lifestyle, and outdoor play are considered important for children to develop physically at the desired level (Kabadayı, 2002).

Using ICT for inappropriate durations in the preschool period may cause some physical diseases and developmental problems. Complaints such as hand, wrist, and elbow pains, nerve compression, structural deterioration in the fingers, and a decrease in grip strength as a result of the frequent use of computers and mobile communication devices are quite common. Standing in the same position, sometimes looking at the screen for hours causes the neck muscles to contract, get numb and become rigid. With the advantage of mobile internet, it is stated that children who are exposed to smartphone or tablet light in their bed until late hours also experience various sleep problems (Aslan & Aylaz, 2014). Although the redness and blurred vision in the eye due to blue light emitted from the screen of devices such as personal computers, smartphones, and tablets are seen as temporary problems, they may cause serious eye diseases such as myopia in the future (Akçay, 2018). Mustafaoğlu and Yasacı (2018) stated that digital games played by children may be associated with bodily diseases such as dry eyes, impaired sleep quality, pain, redness, and musculoskeletal system problems. It is stated in another study that uncontrolled use of technological devices may cause delayed walking in children (Yengil, Döner Güner & Topakkaya, 2019).

As a result of children excessively watching television, negativities such as visual and hearing disorders, headache, sleep disorders, weakness, fatigue, and weight problems can be seen. Children watching television for long hours causes the body to become passive and keeps them away from activities that they can do outdoors. In the preschool period, the child's doing activities involving movement provide flexibility, provides hand-eye coordination, regulates body metabolism, and prevents obesity (Güngör, 2014). According to Dietz and Gartmaker (1985), there is a positive correlation between excessive weight gain and time spent in front of the television (Oktay & Unutkan, 2005). In addition to the physical inactivity caused by the time spent in front of the television,

eating disorders can also be seen. The consumption of unhealthy foods, known as junk food while watching TV, and habits such as eating unwittingly, can lead to the risk of eating disorders and obesity. The habit of eating in front of the television continues in later ages (Matheson, Killen, Wang, Varady & Robinson, 2004). Besides, advertisements of candy and chocolate, which are frequently broadcasted on cartoon channels, cause children to meet these unhealthy foods and demand them from their families (Karaca, Pekyaman & Güney, 2007). According to the study conducted by Babaoğlu and Hatın (2013), the obesity prevalence of children who watch television for 4 hours or more is higher than that of children who watch television for less than 1 hour.

Excessive internet use and playing virtual games in the preschool period change the child's gaming perception and weaken their gaming skills. It is stated that if children in the development period use computers for long periods, their muscles will be negatively affected and physical problems such as posture disorders may occur (Kuzu et al., 2008). Tablets, which are one of the most used devices in the preschool period, can affect children's brain functions and shorten their attention span (Miller, 2005).

Smartphone addiction (nomophobia) that can be seen in children also poses a danger in terms of brain development. In the study conducted by Park and Park (2014) by measuring brain waves, a relationship was found between reduced right brain activity and nomophobia. When individuals who use phones for a long time in a sedentary position have less desire to move even when they go outdoors, which causes various physical retardation (Kızıлтаş & Ertör, 2018).

As can be seen in many studies conducted on the subject in the literature, the intense interaction of children with ICT tools is considered harmful in terms of physical development. The child needs to use ICT tools under the supervision of the family for the appropriate periods and frequency. Technological devices should be seen as auxiliary tools for physical activities and exercises. In dynamic games that will develop motor skills, using visual and audio materials provided by ICT tools in activities such as dancing, running, and walking can increase motivation. Any kinetic behavior seen on the screen can be imitated by the child in real life. For this reason, it is considered an important factor to use the technological devices preferred by families at appropriate times and to determine the contents that will increase the child's desire to move to make ICT tools positively affect physical development.

6. Use of ICT in Preschool Education

In the era we live in, it has become compulsory to use ICT in the field of education, as in all fields. Although the harms of technology for children are still being discussed, it is not possible to maintain an education completely free from technology in the learning process. Many ICT tools, especially computer technologies, are used in the creation of training programs, the preparation of learning tools and equipment, and in all processes related to education. Visual and audio materials are used to make learning permanent in the classroom and outdoor activities, and communication with families is established more quickly via ICT.

The individual needs to acquire skills appropriate to the needs of the age and adapt to technological developments. Among these skills, which are expressed as 21st-century skills and desired to be acquired through education, are “information, media, and technology skills” (Partnership for 21st Century Skills [P21], 2009). Children need to have these competencies to access correct information from a critical point of view, to follow innovations, and to use technological tools for educational purposes from an early age. It is possible with early childhood education to increase the applicability of the theoretical knowledge that children reach in the digital environment in real life and thus to make them gain the life skills they need to have.



Figure 2: 21st Century Skills

Source: A study conducted by Partnership for 21st Century Skills (2009)

Digital educational materials integrate the virtual world and the real world thanks to many features that traditional materials cannot provide, and offer different experiences to the user. It is already possible to say that augmented reality technologies will prevail in education in the coming years. According to the results of the study conducted by Kuzgun (2019), when augmented reality technologies are used in the preschool period:

- it attracts the attention of children,
- gives children a sense of reality,
- concretizes the content,
- positively supports peer relationships,
- presents information in color and visually at the same time,
- creates a fun educational environment,
- children are more eager to participate in activities, and
- focus more on the activities.

Teachers' attitudes and behaviors, media literacy, and competence in preparing and applying activities suitable for children's development by using technological materials are among the determining factors for children to use ICT tools for educational purposes. Many studies in Turkey on the use of technology by preschool teachers and teacher candidates have reached positive results. Kabadayı (2006) stated that teachers are optimistic about the active use of educational technologies in the learning and teaching process. Aksan (2020) concluded that preschool teachers' self-efficacy beliefs about technology use were at a high level. According to the study of Çörekçi (2020), preschool teachers stated that technology made a positive contribution to music activities. It is also seen in other studies that teachers had positive attitudes towards maintaining computer-aided education and using information technologies (Yel, 2018; Akkaya, 2019).

Since ICT tools, such as computers and tablets, appeal to more sensory organs than traditional methods, they facilitate learning and teaching when used consciously in the education process. It was stated in the study of Ergüleç and Kiremit (2019) that the pictures drawn by school-age children with tablet computers were more detailed, colorful, and creative than the pictures drawn on paper with pencil, children were interested in tablet computers, and that tablets were devices that could be used in education. In another study, it was concluded that computer-aided methods were more effective than traditional methods in learning the main and intermediate colors for children aged 3-4 (Demir & Kabadayı, 2008).

ICT can be used in many types of activities in preschool education, including mathematics, science and nature, movement, art, literacy preparation, music, drama, games, and Turkish language activities. The use of ICT for learning under the guidance of teachers ensures that activities that are difficult to perform or that pose a risk for children in real life are learned safely. Besides, thanks to the fact that children can perform these activities in the home environment independent of the educational environment, more permanent learning is provided. For this reason, the use of ICT in pre-school education provides more advantages than traditional methods at some points.

7. Conclusion

Children are introduced to ICT, which is increasingly used in all areas of life, from a very early age. It is seen that the ICT tools most preferred by preschool children are smartphones, tablets, televisions, the internet, and computers. These technological tools are mostly used to watch cartoons and videos, play digital games, listen to music and take photos in the 0-6 age period. ICT usage habits of adults affect children's use of technology. Children grow up by modeling the technology use of their parents, siblings, and teachers.

In the literature, there is no consensus on the age that children should start using technological tools and to what extent they should use them. However, it is stated that many risk factors occur in the pre-school period when ICT is used excessively and parents do not supervise and control their children adequately. Among these risks are technology addiction, exposure to violence, fear and sexual content, physical inactivity, and asociality. Moreover, long-term use of ICT paves the way for physical problems such as distraction and lack of concentration, obesity, deterioration of sleep quality, headache, developmental delay, and eye diseases.

Using ICT for appropriate periods and at an appropriate frequency and determining contents suitable for the development of children provide benefits in many areas, especially in cognitive and language development. Thanks to the visual and audio materials offered by ICT, the motivation of children increases and the learning process becomes fun. It facilitates concept teaching in pre-school education and improves speaking and listening skills. Since there is an opportunity for individual learning, active participation, and repetition in technology-supported education, more permanent learning can be achieved

compared to traditional methods. If appropriate software and tools are used, life skills such as creativity, problem-solving, critical thinking, decision-making, and effective communication can be supported by ICT. Families and educators have a major role in creating positive effects on children's technology use habits.

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CHAPTER VIII

MOOCS IN LANGUAGE LEARNING: A SCOPING REVIEW

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1. Introduction

Learning English as a foreign or second language (hereafter, EFL/ESL) is regarded as a complex process and very challenging endeavour for language learners in reaching the desired proficiency level. By dint of the rapid developments in science and technology, emerging and advancing innovations in the field of language learning have begun to play a facilitator and enhancer role in learning EFL/ESL in the 21st century. Since its introduction from the 1960s to date, the use of technology has had an essential role in minimising period required to learn the target language, motivating learners, and responding to their needs in language learning process (Al-Mahrooqi & Troudi, 2014; Shyamlee & Phil, 2012; Yaverbaum & Wood, 1997).

As well, the application of computer technologies and developing innovations in learning EFL/ESL not only provides a more student-centred learning environment where it enriches traditional language learning environment with varied input but also gives language learners the advantage of increasing their retention of knowledge by providing innumerable interactive learning opportunities outside the classroom. The practice of those innovations also reduces teacher centredness and becomes conducive to decreasing language

learners' learning anxiety, giving them the chance to practise language in comfort without being embarrassed of making mistakes, and reducing their "affective filter" in that process (Krashen, 1982; Krashen & Terrell, 1983; Lightbown & Spada, 2013; McLaughlin, 1992). In addition, using technological innovations in learning EFL/ESL allows language learners to have more increased independence, thus enabling them to be at the centre of language learning process and more actively engaged in learning than in a traditional classroom atmosphere where direct instruction methods are often applied (Alemi, 2016; Jewell, 2006; Singhal, 1997).

In this sense, the increasing and rapid growth of information and communication technologies with technological innovations cannot go unnoticed in the field of learning EFL/ESL due to the fact that a decade ago language learners were largely limited to print materials, recordings, and language classrooms where they were generally passive recipients of knowledge and lack of adequate incentives to enhance language skills effectively (Alemi, 2016; Shyamlee & Phil, 2012). At this point, massive open online courses (hereafter, MOOCs), which are considered as one of the modern technological innovations of the 21st century, enable language learners to work together to co-construct and distribute knowledge in a communal environment depending on the theory of connectivism.

2. Review of Literature

2.1 *The Conceptual Framework*

In connectivism, learning occurs when knowledge is actuated by a learner through his/her participation in social interaction, connection, and collaboration in a learning community. Further, according to connectivism, when connections are made in a knowledge-based and networked society, learners may recognise connections, patterns, and similarities between ideas while learning. In other words, learning is composed of networks of connections clustered through experiences and interactions between individuals, societies, institutions, and the technologies that link them. Autonomy, diversity, openness and interactivity, socio-constructivism, collaborative learning, and connectivism are fundamental characteristics and principles underpinned by MOOCs to make a learner a self-directed learner via social interaction and active engagement in learning process (Anderson & Dron, 2010; Downes, 2012; Dunaway, 2011; Elia & Poce, 2010; Goldie, 2016).

After concisely revisiting the theory behind the emergence of MOOCs above, it is of necessity to lay emphasis on the fact that the first massive open online courses, which were designed by Siemens and Downes according to the principles of connectivism, became the initial driving force and the inspiration for launching more MOOCs in Canada and the United States (Miller, 2014). As well, literature on MOOCs reveals that they have evoked huge enthusiasm around the world, thus expecting to revolutionise and democratise education especially in higher education institutions (Conole, 2013; Colby, 2017; Deng et al., 2017; Pareja-Lora et al., 2016; Perifanou, 2016; Yuan & Powell, 2013), since they are defined as online access to learning at a massive scale to any learner interested in a specific course unavailable at school. A typical MOOC offers lecture videos, coupled with automated evaluations, and online forums for learners' interaction with peers without time and space restrictions (Decker, 2014). Whereas MOOCs give instructors and course designers amazing experiences and the freedom of design, MOOCs require them to provide flexibility, choices, and alternatives for learners, which actually means a huge time commitment on their parts in designing a MOOC by taking into consideration all aspects of learners' diversities (Marcus-Quinn, & Clancy, 2015).

Much has been published as to pedagogy of MOOCs (Boling et al., 2012; Fini, 2009; Kop et al., 2011; Rodriguez, 2013). To illustrate, some research accentuates that when MOOCs learners possess intrinsic motivation and self-determination respecting interaction with their peer on MOOCs, they are less likely to drop out the courses (Halawa et al., 2014; Jordan, 2014; Onah, et al. 2014). Besides, other studies have explored some issues such as conditions for effective integration of MOOCs into the curriculum of tertiary education and language learning in the context of open, continuous, secondary and higher education (Billington & Fronmueller, 2013; Godwin-Jones, 2014; Jansen & Konings, 2016; Kim, 2016; Kulik & Kidimova, 2017; Lambert & Alony, 2015; Rybushkina & Chuchalin, 2015; Stognieva, 2016).

2.2 Review of Relevant Research Studies

With the help of the growing power of Internet, the number of non-native English-speaking learners in MOOCs is expected to grow rapidly as the total number of these courses dramatically increases (Shah, 2015). As far as MOOCs in learning EFL/ESL are concerned, some researchers have shown interest in the use of MOOC as an instructional pedagogy (Ventura et al., 2014; Hibbs &

Stevens, 2012; Perveen, 2018). MOOCs in language teaching have the potential to support large communities of practice, collaborative learning, enhanced peer interaction, and communication (Colpaert, 2015; Lothington & Jensen, 2011).

Similarly, in their studies, Beaven et al. (2013), Rubio (2015), and Mackness et al. (2010) emphasised that the key to successful language learning lies in interaction, co-creation, community building, and networking. Sokolik (2015) also asserted that use of MOOCs may provide authentic and communicative language learning environment. The studies of Comer and White (2016) and Yang and Meng (2013) stressed that a well-structured system of peer feedback for writing may be effective in improving language learners' writing skills. In a similar way, Freihat (2014) stated that MOOCs could develop language learners' speaking skill.

There are some concerns regarding the use of MOOCs in learning EFL/ESL. For instance, Perifanou and Economides (2014) underlined that there are no design formulas to create efficient language courses for language learners. Furthermore, although MOOCs are considered to play a pivotal role in language teaching and learning, there are scarcely any studies on perceptions of EFL learners (Anzai & Akahori, 2015). Despite the increase in the number of MOOCs, there is insufficient data about language learners' acceptance of MOOCs (Hashim et al., 2018). Further, there is also a lack of exhaustive research on how MOOCs may effectively be designed (Wong, 2016) and how an in-depth analysis of learning and teaching dynamics in MOOCs could be conducted (Deng et al., 2017).

Prior to undertaking this systematic review, we conducted a literature review that reveals there are only a couple of review studies as to use of MOOCs. To illustrate, Liyanagunawardena et al. (2013) reviewed the studies published in 2008-2012 and concluded that most of those papers underscore the issues of MOOCs' introduction and practice challenges. By the same token, Veletsianos and Shepherdson (2016) analysed the empirical studies published between 2013 and 2015, concluding that more than 80 percent of those are related to learner-oriented issues, such as learner behaviours, performance, learner participation and interaction. In addition, Yousef et al. (2014) investigated the studies on MOOCs conducted from 2008 to 2014, with an emphasis on the issues like design, learning theory, case study, business model, target group, and assessment. Gasevic et al. (2014) examined the studies related to MOOCs and identified some important themes like social networks and communities, mobile and adaptive learning, motivation, and behavioural patterns.

2.3 Aim of the Study

Though there is a plethora of primary studies and a couple of review studies on MOOCs in many disciplines, there is the scarcity of review studies exploring the benefits and challenges of MOOCs in learning EFL/ESL. Thus, this review as an initial step is of significance to provide insights into how beneficial and challenging the use of MOOCs is in learning EFL/ESL. The study also aims to investigate whether MOOCs in the field of EFL/ESL present language learners with the opportunities they are seeking to improve language skills adequately. Furthermore, this review study presumably casts a partial light on some of the aforementioned issues arisen and may enable further researchers, course designers, and instructors to help find the trajectory for language learners to get the most out of MOOCs. To this end, the following research questions guide the research:

RQ1. What are the benefits of MOOCs in learning EFL/ESL?

RQ2. What are the challenges of MOOCs in learning EFL/ESL?

3. Method

The review was carried out in accordance with Cooper's principles of undertaking a review including the steps of problem formulation, data collection, data evaluation and analysis, and interpretation (Cooper, 1982; Cooper & Hedges, 2009).

3.1 Problem Formulation

In the problem formulation process, given the complexity of and the breadth of the use of MOOCs in various fields, research questions are limited to two dimensions as benefits and challenges of MOOCs in the field. In this sense, primary studies with a focal point of the use of MOOCs in the field of EFL/ESL were taken into account while the studies were being sifted through.

3.2 Data Collection

Depending on review questions and inclusion criteria, we included grey literature including conferences papers, theses, and projects in our review to reduce the effect of publication bias (McAuley et al., 2000), since it offers huge quantity of evidence (Grayson & Gomersall, 2003; Young et al., 2002). To

retrieve relevant studies between 2008 and 2020, we searched Web of Science (WOS), ERIC, EBSCOhost, ScienceDirect, SCOPUS, IGI Global, Wiley Online Library, Emerald Insight, and Sage databases, as they are considered as major ones in social sciences (Taylor et al., 2003). For each search on the databases, the researchers used broader keywords with the Boolean operator “AND” between them in order to retrieve more exhaustive and inclusive results. The following terms as “massive open online course” AND English” or “MOOC AND English” or “language AND MOOC” or “English language AND MOOC” were used. Publications with the derivation of the MOOC term like “LMOOC” was also included in the search.

The following criteria were applied to each retrieved record to decide if each should be included in or excluded from our review (Harden & Gough, 2012; Harden et al., 1999). The set of criteria was as follows: a) studies on MOOCs in learning EFL/ESL, b) studies published in English, c) studies published from 2008 to 2020, d) full-text studies including articles, conferences papers, theses, and projects.

3.3 Data evaluation and Analysis

Following each search conducted through the databases, initial selection was performed filtering duplicate studies using reference management software EndNote x9. Afterwards, eligible studies were selected through a multi-step approach (title reading, abstract, and full-text assessment by the researchers. As a result, a total of 44 studies that meet inclusion criteria of the research were sampled for this review. To maximise relevance and theoretical contribution of the studies through the synthesis process (Harden & Gough, 2012) for quality and relevance appraisal, both researchers evaluated all eligible studies independently.

Content analysis, which is basically defined as a research technique for making replicable as well as valid inferences from verbal, visual, or written data, shows and quantifies specific phenomena (Downe-Wambolt, 1992; Krippendorff, 2004). In this sense, for the research questions addressing the benefits and challenges of using MOOCS in the field of EFL/ESL, content analysis was conducted to reveal the benefits and challenges of using MOOCS. To ensure the quality and trustworthiness of the analysis, each stage was repeated independently several times in collaboration with an external coder having experience in qualitative data analysis.

To improve the validity of the current study, the analysis was carried out separately and the results were discussed in order to reach an agreement on the themes (Graneheim & Lundman, 2004). To achieve high reliability, the deductively generated coding list was used prior to the analysis process (Catanzaro, 1988). During the data analysis, each identified meaning unit was labelled with a context-related code. Following the identification of a meaning unit within the data, the data were reread alongside the final list of meaning units. Themes were identified and then established as a result of each coder's final coding process, in accordance with the meaning units gathered by the two researchers (Graneheim & Lundman, 2004). In case of a disagreement between the two reviewers, a third reviewer was consulted. Inter-rater reliability of final coding was found to be .89, implying that the reliability of the review is considered as good (Cohen, 1960; Curley & Vitale, 2015).

4. Results and Discussion

4.1 The Benefits of MOOCs in Learning EFL/ESL

4.1.1 Improve Learners' Linguistic Skills

From language learners' perspective, some of the reviewed studies report that the use of MOOCs fosters language skills such as writing, reading, listening, and vocabulary. For example, in the study of Comer and White (2016), language learners make gains pertaining writing skills through the engagement with others in a MOOC-oriented writing course. Similarly, reviewed studies also underline the contributions of MOOCs to the improvement of language learners' skills in reading and writing (Zhang, 2017), listening (Freihat, 2014; Baraibar, 2015), and vocabulary (De Waard & Demeulenaere, 2017). The findings of our review are supported by several studies (Aguaded-Gómez, 2013; Bradshaw, 2013; Mackness et al., 2010) in that the environment in a MOOC provides more convenient conditions for learners of EFL/ESL when compared with traditional learning contexts, thus MOOCs in the field is conducive to enhancing linguistic skills of learners.

4.1.2 Create an Incentive for Learning

Another reported contribution of a MOOC to language learners is to motivate them through the provision of videos and constant practice of interactive activities embedded in MOOCs platform, which paves the way for an increase in their

level of learning and satisfaction (Beltrán, 2017). In the process of language learning, one of the most crucial points is the motivation of language learners (Gardner, 2007) in that achievement correlates positively with motivation in online language courses (Bekele, 2010; Ushida, 2005). Additionally, in the studies of Zheng et al. (2015) and Zutshi et al. (2013), who investigated language learners' incentives for registering MOOCs, language learners express that MOOCs fulfil their current needs, help them be prepared for the future, satisfy their curiosity and connect with people. Besides, interest in the subject, enjoyment, desire to improve language skills, and certificates are among the most essential incentive factors that language learners take into consideration prior to taking part in MOOCs.

4.1.3 Personalise Language Learning

With the advent of technological developments and their practices in the field of language teaching, language learners become more self-directed learners. According to our findings, a MOOC offers language learners a more personalised environment where they are supposed to take the responsibility of learning a language and choosing learning contents, thus motivating them to help develop higher cognitive skills and foster language learning (De Waard & Demeulenaere, 2017; Li, 2017; Manli, 2014). In the same vein, presenting technology-enriched activities via MOOCs also supports self-regulated language learning (Chen, 2014; Manning et al., 2014; Perifanou & Economides, 2014; Perifanou, 2017). Via the design and structure of presented sequence of activities and content in a MOOC, language learners may have the opportunity to learn the given content at their own pace on the basis of interaction with their peers and teachers (Chinnery, 2006; Croxton, 2014; Littlejohn et al., 2015; Kuksenok et al. 2013; Kulkarni et al. 2013; Kukulska-Hulme & Shield 2008; Laverde, et al., 2015).

4.1.4 Teacher Facilitates Learning

From the teachers' side, some of the reviewed studies mention that the traditional role of the language teacher shifts from "sage on the stage" to "ghost in the wings", implying that the language teacher assumes the role of a moderator or a facilitator. This new role of the language teacher is defined as the promoter of learning process and a guide of language learners to acquire resources, employ, and apply knowledge in real life situations. Such transition also allows language learners to take a leading role in their learning process (De Larreta-Azelain, 2014).

4.1.5 Provide Flexibility

According to our findings, the most prominent benefits of using MOOCs in learning EFL/ESL is the freedom given language learners to access materials and activities embedded in MOOCs anywhere and anytime (Bandi-Rao, 2015). In addition, another positive highlighted point as to utilising MOOCs in learning EFL/ESL is the creation of an interactive environment in which language learners may develop their language skills through engagement and collaboration with others (Li, 2017). The flexibility of MOOCs is considered as an active, constructive, and interactive framework enabling language learners to take the control of time, place, and pace of their communication and interaction in the form of dialogic and networked language learning experiences with others (Chi, 2009; Clarà & Barberà, 2013).

4.1.6 Provide Interaction

MOOCs also have the potential for providing language learners with collaboration, interaction, and resource exchange within the community of language learners (Kop et al., 2011; Mackness et al., 2010; Siemens, 2005). Similarly, a recent research accentuates that massive open online language courses incentivise learners' sharing anything with peers, their active explorations, knowledge generation, and reflections on language learning in learner-controlled spaces (Koutropoulos, 2013) by building a sense of "belonging" to the community where they interact with others (Liyaganawardena & Williams, 2016).

4.2 *The challenges of MOOCs in teaching EFL/ESL*

4.2.1 Low Participation Level

Some of the reviewed studies report that low participation level of language learners in MOOCs is one of the most important challenges faced with. In the reviewed studies, it is also ascertained that at the beginning of massive open online courses there is a high level of engagement and enthusiasm, but towards the end of courses a very considerable dropout rate emerges among language learners (Martín-Monje et al., 2017). As one of the most disconcerting issues discussed by some researchers (Goral, 2013; Hew & Cheung, 2014; Liyanaganawardena et al., 2013; Martín-Monje et al., 2013; Read & Rodrigo, 2014; Starr-Glass, 2015; Wu & Lee, 2014; Zheng, 2018), high dropout rate of a running course is attributed to various reasons including shortage of incentives,

time, and insufficient prior knowledge of language learners (Veletsianos & Shepherdson, 2016).

4.2.1 Low Proficiency Level

In addition to this, language learners of MOOCs could have difficulty in understanding linguistically advanced contents, as language learners lack adequate English proficiency which may help non-native English-speaking students take part in a MOOC environment actively (Manning et al., 2014). In a study conducted by Hvam (2015), language learners are found to be passive participants of discussion forums, and fail to understand the content, ambiguous assignments, and expectations of MOOCs, since the majority of MOOCs is offered in English, and it is not spoken and understood by all potential MOOCs users. Similarly, in a study done by Liu et al. (2010), most of the language learners are not able to participate in online forums since their English language level is not adequate for communication.

4.2.1 Difficulty of Peer Assessment

One of the other key challenges in the use of MOOCs in teaching/learning EFL/ESL is on peer assessment, since that process is considered to be difficult, time consuming, and unhelpful by language learners who have no adequate experience and understanding of how peer assessment is actually conducted (Bloch, 2016). Peer assessment and feedback are regarded as the most debatable issues in the context of using massive open online courses in learning EFL/ESL. From language learners' point of view, peer assessment is considered as a difficult task to fulfil (Sharples et al. 2012). Instead of well-structured criteria, a vague set of criteria leads language learners to uneven and unhelpful feedback about the assessment of peers' artefacts (Ferris & Hedgcock, 2014; Krause & Rice, 2013; Kulkarni, et al., 2013; Suen & Pursel, 2014). It is also noted that language learners are in need of more personalised feedback from knowledgeable reviewers in the assessment process of their own writing (Ferguson & Sharples, 2014; Griffin & Minter, 2013).

4.2.1 Technical Difficulties

Another reported pedagogical challenge in the reviewed studies is technical issues including slow streaming of videos, bandwidth of Internet connections, poor quality of microphones, and lack of alternative formats for some materials

embedded in MOOCs (Perveen, 2018). In spite of the fact that a MOOC is emphasised with its open access features and open licensing of content and structure, some scholars point out that some MOOCs restrict licenses for course materials and demand additional costs for personalised feedback (Rodrigo, 2014). Ideally, MOOCs in learning EFL/ESL should offer an opportunity for self-development of language learners who are likely to have difficulty in acquiring adequate language education due to some socio-economic issues. However, some of the reviewed studies highlight that the lack of MOOCs' content in local languages is one of the challenges posed to the process of language learners (Uchidiuno et al., 2016).

Albeit the ubiquity of massive open online language courses, technical issues, limited licenses for courses, and lack of local language support are seen to be some accessibility barriers in the literature (Chai & Lang, 2014; Chung, 2015; Hvam, 2015; McGill, 2010; Takagi et al., 2008). The study of Liyanagunawardena et al. (2013) underlines that in view of the technological barrier to their access to learning content of MOOCs, there are a limited number of language learners from Asia, Africa, and South-East Asia. Likewise, it is mentioned that many of the African learners have no access to a computer. In addition, MOOC learners from African countries find it very difficult to comprehend the medium of communication, hence after a number of trail learners may give up (Safana & Nat, 2017). As regards technical barriers, because of poor bandwidth which is required to upload/download some files, connections are not adequately met by internet service providers (ISPs).

5. Conclusion and Recommendations

Although not being lucid whether MOOCs represent a revolution in learning EFL/ESL, they have created learning opportunities for hundreds of thousands of language learners by pushing language learning into novel areas of connectivist pedagogy with anywhere and anytime characteristics. In order for course and curriculum designers to eliminate the existing challenges regarding the use of MOOCs in learning EFL/ESL process, initially a learner-centred MOOC design which is supposed to take language learners' point of view, levels, requirements, expectations, and feedback into consideration will be more likely to have more chance to satisfy a wider target of learners, thus providing them with trajectories for meaningful and effective language learning.

As well, carrying out a needs assessment in advance of offering a new MOOC to language learners may make substantial contributions to possibilities of its being accepted and appreciated by language learners (Cirulli et al., 2017). In the same vein, in the design process of MOOCs, taking language learners with educational and socio-cultural backgrounds into account may enable them to have the opportunity to raise their awareness about their learning intentions and activities by self-organising, practising learning, and taking an active role in the management of their learning cycles. Hence, in doing so the level of language learners' participation in a MOOC can be increased. In the same vein, in order to overcome the issue, low-level participation, a meaningful learning in a MOOC that offers cognitive and metacognitive prompts may be the solution to that issue instead of merely presenting information in MOOCs (Drake et al., 2015).

With a view to increasing language learners' participation level in peer assessment and feedback, Guàrdia et al. (2013) assert that it is of great necessity to consider the notion of "paragogy" pertaining to theory of peer-to-peer learning where language learners are aware of the value of peer assistance and rely on the support of peers during their learning process through comments and social appraisals while specifying the components of MOOCs in learning EFL/ESL. Furthermore, concerning the evaluation of peers' artefacts a well-established set of assessment criteria for a MOOC may in advance be specified in line with the contents and goals of that MOOC in order for language learners to be able to assess their peers accurately and build up trust on self and peer assessments (Guàrdia et al., 2013).

The reason why teachers may not decently interact with language learners is that while engaging in language learners, teachers are faced with the massive size of the contents of MOOCs (Drake et al., 2015) and may not have the adequate energy and time to have a sound interaction with them in the same way they are able to do in smaller classes. Thus, to meet the needs and expectations of language learners in a MOOC, the further design of a MOOC could have a more "compact" structure that aims to restrict participation of language learners to lower numbers, thus allowing language learners to actualise effectively their expectations concerning interaction, immediate feedback, and guidance in learning EFL/ESL.

In spite of technological advances and innovations of today, there are still insoluble technical issues, one of which is the Internet connection speed

(Drake et al., 2015). While some language learners can have high bandwidth Internet access, some still work with low bandwidth connections, which actually impedes language learners' reaching the content of MOOCs. Similarly, despite the fact that the availability and accessibility of MOOCs generally depend on their providers, and that those providers often have the tendency to restrict the openness of MOOCs, it is believed by some course developers (Sandeen, 2013) that the term "open" in a MOOC refers to open enrolment rather than having the ownership of the course content.

Besides, open enrolment attracts more language learners having little or no experience of a MOOC usage as well as the public at large; however, more common unrestricted MOOCs that are free from copyright restrictions should be served, otherwise language learners may be more disengaged and frustrated (Dixit & Prajapati, 2015) with reaching the whole content of MOOCs. Most learners in developing countries mainly use their local language (Liyanagunawardena et al., 2013), and as the awareness of the use of MOOCs in many fields grows in the coming years, there may be greater demand for more local versions of MOOCs including regional and native content from local teachers (Adham & Lundqvist, 2015).

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CHAPTER IX

EARLY LITERACY AND THE READING-WRITING PROCESS

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1. Introduction

Until the 21st century, reading-writing were not taught before children started primary school, and formal reading-writing was initiated with primary school. Concepts such as preparation for reading-writing and early literacy generally have taken part in literature with developments such as scientific studies, availability of widespread pre-school education and awareness of families, and studies have been conducted accordingly. It has become important to acquire literacy skills at the earliest period and to start the preparation studies for reading-writing early especially because of the importance of early childhood. In the context of the results of scientific studies, it was understood that some language acquisitions that could be a precursor in literacy starts before birth, and shows a rapid development in the pre-and post-speaking periods along with the communication between adult and baby, including crying after birth. Studies also revealed that listening, speaking, reading-writing, which constitute the dimension of comprehension and expression, which are among the language skills that will constitute the basis of reading-writing, are acquired naturally, randomly or in various activities in this process. Within the framework of these developments, many concepts such as early literacy, emergent literacy, preparation for reading-writing, reading readiness, etc. related to reading-writing have entered the literature and the parts or stages of the learning reading-writing process have been specified.

With this study, the issue of early literacy and reading-writing has been tried to be addressed in an intergrity, including the postnatal and subsequent processes, starting from pre-birth, including pre-school education and primary school where formal reading-writing education is carried out. Because, whether it is literacy or reading- writing, it does not begin or end in a period of time and constitutes an important part of human life and child development. It is definitely not the right approach to squeeze these concepts into only one education level such as pre-school or primary school or to limit them to activities carried out in educational institutions. For this reason, it should not be considered in the context of neither age nor education level. In this context, “Early Literacy and Reading-Writing Process Chart” was developed by the author as seen in Figure 1. This chart is briefly named as “EL-RW Process Chart”.

It will be useful to clarify what some concepts mean, how these concepts develop, the role of concepts in the process in order to clarify basic information before entering the “EL-RW Process Chart” with early literacy and reading-writing process. First of all, the concepts of literacy, early literacy and reading-writing will be discussed.

2. Literacy

Today, one of the most important issues in the world is literacy. Due to its importance, various thoughts and goals related to literacy are frequently expressed in every society and are frequently included in education policies and development plans. While developed countries aim to make the whole society literate, developing countries aim to increase the literacy rate as much as possible.

UNESCO, which has been developing the vision of “a literate world for all” since 1946 and has been striving for global literacy, has seen the acquisition and development of literacy skills throughout life as a part of the right to education. However, globally, it is stated that at least 750 million young people and adults are still illiterate, 250 million children have difficulties in acquiring basic literacy skills and so this situation leads to a decrease in the participation of low literate, low-skilled youth and adults to their own society. Literacy is not only important for the individual, society, country, but also one of the important issues for the world. Literacy enables the individual to adapt to society, the development of society, the progress of the country, and it is a human right in

the widest sense. Literacy is the first condition to adapt to the change and speed of the developing and globalizing world rapidly. Literacy has “multiplier effect” and this effect strengthens the individual. It ensures the full participation of the individual to society and increases the level of welfare by improving livelihoods (UNESCO, 2021).

In the 21st century, every individual, wherever in the world, has to be literate for their different purposes. Otherwise, illiteracy will have negative reflections on the individual, society and the country, as well as ultimately on the world. Concretely, as experienced in the Covid-19 process, a negativity that occurs anywhere in the world can spread to very large areas in a very short time and it can take hold of large number of people. The impact of illiterate people is indisputable on the spread and maintenance of these negations. In this context, today, the meaning of the concept of literacy is so wide and the meaning attributed to it has been developed within this scope. According to Kurudayıoğlu and Tüzel (2010), the needs, expectations and values of the society differ in every age, and social acceptance and meanings change according to the characteristics of the age. For this reason, literacy is conceptualized as a skill which is required by the age.

Although there are many different definitions of literacy, if a broader definition is needed, literacy is to exist in the society, to survive and to struggle with problems which may arise, while there are some who define it as reading the written signs and symbols, writing the desired signs and symbols. Literacy is a social necessity that enables people, who are a social entity, to communicate. Literacy is the ability to read and write in the strict sense. Literate is the person who performs this action. Experiences had through literacy are recorded, the feelings and thoughts of others are recognized, understood and developed, and most generally, we communicate with others and share ideas. (Aşıcı, 2009; Güneş, 1997).

The concept of literacy has passed through various stages developmentally. UNESCO, which attaches importance to the development of literacy through studies conducted, prepared an “education program for everyone” in 1987 and within the framework of this program, it defined literacy at three different levels. The first level is basic literacy, the second level is functional literacy and the third level is defined as multi-functional literacy. The first level includes basic literacy skills, the second level includes using knowledge and skills related to reading-writing and arithmetics in every field, and the third level includes developing the

individual's capacity to the fullest and it aims to make the individual strive not only for the development of the self, but the advancement of society by reading-writing. (AŞICI, 2009).

The concept of literacy is a concept that is more comprehensive than the total of reading-writing activities that make up this concept. Although it initially covers basic reading-writing activities, by developing, it evolves to mean a wider meaning than the total of these concepts. Literacy is expressed as using signs and symbols as a tool in the beginning and decoding by voicing and making them meaningful, understanding and comprehending them developmentally. Literacy in a broader sense means getting to know ourselves, our environment, the world. In this context, it is social interaction such as being aware of events, understanding them, and expressing ourselves at the same time. It is to perform the beginning and basic level reading-writing activities. it is not possible to go to higher levels without performing reading-writing activities and realize other purposes. It is possible to express literacy as an indispensable part of life that begins with literacy activity and continues with understanding and making sense of the world and events. (Doyle, 2009; Neuman & Dickinson, 2002).

According to Güneş (1997), literacy is to use individual's knowledge and skills in the social and cultural field, and to express individual's feelings, thoughts and wishes in a correct way in verbal and written form and understand what others say, write correctly by listening and reading. Likewise, literate people, as they improve themselves, also contribute to the solution of problems of the society in which they live and progress of the society.

In the 21st century, literacy has reached such a point that the scope of literacy has expanded with the development of technology and new literacy types such as media literacy, legal literacy, technological literacy, financial literacy, etc. have emerged.

3. Reading-Writing

Literacy is the basis of the whole education systems. The success of children both in educational institutions and in all their lives depends on the literacy activities which is carried out. The negative impact of literacy studies that are not carried out with appropriate methods and materials in accordance with their purpose affects all educational life as well as every areas of life. When literacy activities are not carried out well, it is not possible to be a successful student, a successful

person and a good literate in the future. According to Kavcar et al. (2005), the general purpose of teaching reading-writing is to teach the children the basic skills of reading-writing that they will use throughout their lives. According to Kapkin-Yener (2008), cognitive skills such as comprehension, sequencing, questioning, relating and predicting which individuals will use throughout their lives improve as a result of literacy. Therefore, teaching reading-writing is not limited to basic reading-writing skills, but also fulfills an important function in developing mental skills such as thinking, comprehension, sequencing, classification, questioning, relating, analyzing-synthesizing and evaluating.

Today, questions such as when to start teaching reading-writing and which method to be carried out, and the advantages of the methods to be carried out over each other continue to be a matter of debate. It is the quality that is important in teaching reading-writing. It is not the right approach to say that how reading-writing is taught does not matter. Reading-writing should be realized by understanding and comprehending quickly and accurately with the reading-writing skill which is to be acquired by the child. The child should enjoy reading, and fluent reading and correct writing should be the main goal of teaching reading-writing.

The learning reading-writing process is one of the most important and critical processes in a child's education life. This process is a process in which the student gains the skills and habits of reading pleasure, reading comprehension, reading fluently, and writing properly. (Bloom, 1979; Fidan and Baykul, 1994).

When the historical process of traditional reading-writing is examined, the beginning year of primary school is considered as the basis for reading-writing and learning reading-writing should start with primary school. Reading-writing was not taught to the children in the past before they attended the school. In fact, in some countries, the first grade in primary school was considered as reading-writing education class and the first year in primary school was considered as the reading-writing school year in some countries. Teaching reading-writing begins in the first grade, and due to the structure of the language, it would continue into the following years. Among the reasons why the application is this way, there are the structure of educational systems that stipulate cognitive development, language development, motor development and especially fine motor development in children and their maturation and basic skill levels. With the scientific studies carried out over time and the spread of preschool education in the world, the preparation activities for reading-writing began to be included

in preschool education programs. Until the 21st century, according to Sandvik et al. (2013), even until 25 years ago, it would be considered normal for the child to wait until they start the formal school system to learn how to read and write. According to Morrow, (2007), studies on literacy and early childhood period and developments in this area reveal that the foundations of literacy skills have been laid, especially in early childhood. Among these activities, there are children's literature products such as jokes (Kabadayı, 2005), riddles (Kabadayı, 2007), lullabies (Kabadayı, 2009), counting-out games (Kabadayı, 2014), finger games (Kabadayı, 2017) and it is extremely effective in the development of all their intellectual and cultural capacities.

In order to clarify these thoughts, it is necessary to examine the field of language development and language skills on which reading-writing is based. According to the National Council of Teachers of English (1996), language skills and language teaching are traditionally based on four pillars, and these are listening, speaking, reading-writing. According to Kavcar and et al, the main goal in language education is to make the target audience acquire and develop the four basic language skills of listening, speaking, reading-writing. These skills are not innate abilities; they are obtained and developed directly with training and experience. It requires special effort along with a suitable environment, practice and trials for this. These skills need to be addressed and developed systematically. The place to acquire these skills is the educational institutions but until the child reaches school age, they acquire these skills indiscriminately (Özbay and Melanlıoğlu (2012).

While the reading and listening from these four language skills form the comprehension skills, the speaking and writing skills form the narrative skill. According to Özkan (2008), the ability to express, one of the language skills, is the process of expressing what children see, hear, think, read and listen in accordance with grammar rules. This is performed verbally and in writing. Speaking, which is the sub-dimension of the narrative skill, is the verbal transmission of emotions, thoughts, wishes, information and designs (Sever,1997). Speaking is the process of expressing observations, thoughts, feelings and information through language. It is a basic skill used at home and school, and in social relationships. With this skill, feelings and thoughts are conveyed, knowledge and experiences are shared (Öz, 2006). Speaking is a skill that is frequently used in both education and social life. Speaking forms an important part of an individual's daily life together with listening. Comprehension is one of the basic

language skills and consists of listening and reading skills. Listening is the most used language skill in daily life, and most of our learnings are acquired through listening. A large part of the information that individuals have, approximately 80%, is obtained by listening (Akyol, 2006). Listening, which is one of the basic language skills, starts in the womb before birth, develops gradually after birth and forms the basis for all other skill areas (Güneş, 2013), (Bulut, 2013). The acquisition and development of listening skill, which is an innate skill area, requires an education process (Maden & Durukan, 2011). Listening skill starts firstly in the family where the children receive their first education, and then it is tried to be developed in a planned and programmed manner with formal education (Kurudayıoğlu & Kana, 2013).

In studies on literacy, it was stated that the acquisition process of literacy does not start with school and does not occur spontaneously but it is learned and developed in the process from the first years of life. As can be understood from literacy definitions, literacy should not be evaluated only as the job of schools, and children engage in literacy activities that are precursors of reading-writing before going to school and meeting with their teacher. The literacy gains that children acquire in the early years facilitate the literacy studies carried out during the school period (Whitehurst & Lonigan, 2001).

4. Early Literacy and Reading-Writign

Literacy has gone through a process chronologically as follows: Before starting the formal school system until the 20th century, children were not taught to read and write, and with the spread of pre-school education institutions, preparation activities for reading-writing started to take place in the programs of these institutions. Towards the end of the 20th century, concepts such as “emergent literacy” and “early literacy” entered the literature.

National Research Council, (2001) defined emergent literacy as the unofficial processes in which literacy skills emerge and develop in the period of time which is from birth to formal education. According to Lonigan, (1994), emergent literacy consists of knowledge, skills and attitudes that constitute the basis for traditional reading-writing education and preparation for reading-writing and environments that support these developments.

The emergent literacy concept indicates that literacy is a dynamic process and literacy achievements have a developmental continuity. Within the scope

of emergent literacy, both verbal language skills and reading-writing develop correspondingly in individual by starting from early ages through social interactions. Verbal language skills and reading-writing are components of literacy and constitute the most important issue of early childhood. (Whitehurst and Lonigan, 1998).

Early literacy is defined as a process that includes the knowledge, attitude and preliminary skills of children to that time before starting reading-writing education in primary school. (Lerner, 2000; National Early Literacy Panel 2008, Neuman & Dickinsn, 2011). According to the National Institute of Child Health and Human Development, early literacy is everything which children know about reading-writing before they learn to read and write. Early literacy comprises a basis for literacy, and thus children are prepared to start reading-writing (Ghoting and Martin-Diaz, 2005).

Advocates of early literacy consider the adult starting to talk to the baby as the beginning of the early literacy process and there are even those who start the process prenatally. Therefore, when children start learning formal reading-writing at school, they become ready thanks to their previous learning about reading-writing.

5. Early Literacy and Reading-Writing Process Chart (EL-RW Process Chart)

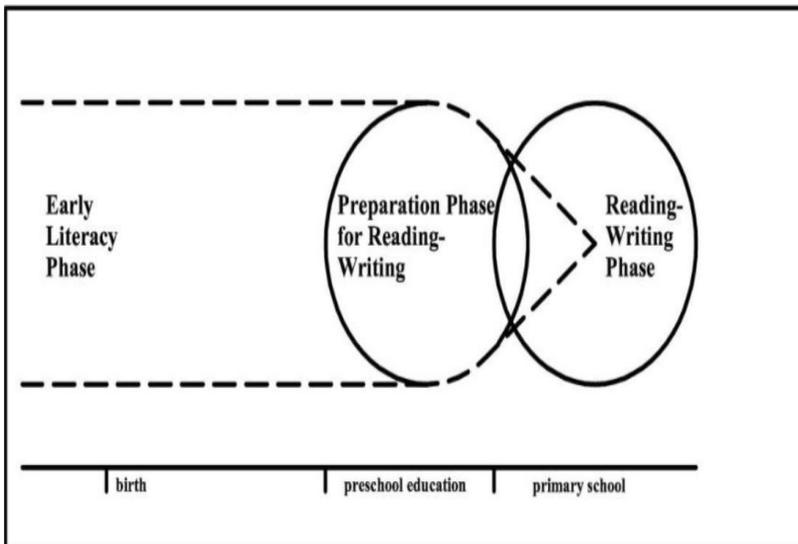


Figure 1: Early Literacy and Reading-Writing Process Chart

When Early Literacy and Reading-Writing Process Chart (“EL-RW Process Chart”) is examined, it appears that there are three phases. The first phase is the early literacy, the second phase is the preparation for reading-writing, and the third phase is the reading-writing phase. These three phases are not disconnected from each other and continue at the same time occasionally and form an intersection set and follow a parallel progress. For example, while the early literacy phase, which is the first phase and starts before birth, continues, the preparation phase for reading-writing begins at some point of the process and continues with it correspondingly, or while the early literacy phase continues, it accompanies a long part of the reading-writing phase and follows a parallel process. Therefore, these phases do not start at one point and end at the other, and there is no transition to another phase. As can be seen in the “EL-RW Process Chart”, more than one phase are involved in the process simultaneously and contribute to the reading-writing.

As can be seen in the following sections and explanations, the first stage in the early literacy phase begins and continues before birth and early literacy phase, which includes the preschool period, continues to exist in a long part of the phase where formal reading-writing education is carried out in the first grade of primary school.

The second stage which is the preparation phase for reading-writing starts in the preschool education period and continues until the end of the preparation studies for reading-writing in the first grade, where formal reading-writing education is continued. The point that should not be forgotten is that the early literacy phase also continues its existence correspondingly and contributes to the reading-writing. That is to say, while the early literacy process continues, the preparation activities for reading-writing are carried out formally with some activities which are carried out with the child who starts preschool education. At the same time, the early literacy phase continues in the daily life and immediate environment of the child in parallel with these studies and supports the preparation activities for reading-writing. In other words, while in the preparation phase for reading-writing, the early literacy phase is not completed and continues, contributing to the preparation phase for reading-writing. Early literacy is sometimes confused with preparation for reading-writing. As will be explained in detail in the following sections, the preparation for reading-writing refers to the direct teaching of the skills necessary to formally prepare children for learning reading-writing.

The reading-writing phase, the last and third stage, begins formally with preparatory work in the first grade of primary school and continues until children learn to read and write. This phase begins in the last part of the preparation phase for reading-writing which starts in the preschool period, and continues until the children learn to read and write. The phases in the “ EL-RW Process Chart” and the studies conducted with the characteristics of these phases are tried to be explained in the following sections.

5.1 Early Literacy Phase

The early literacy phase is the first stage that starts before birth. At this stage, the child gains language skills spontaneously and naturally from their immediate environment with verbal language interactions and written materials. These are the leading gains of reading-writing.

From the first years of life, children begin to acquire reading-writing skills, and increase their competence, by being coincidentally and supported in daily life. In this process, the individual is involved in a wide variety of activities in daily life in order to get to know themselves and the people around them, and to understand and to make sense of what is happening around them. In these activities, the child sometimes can be the subject, the object, active or passive. However, the children always acquire various gains such as meeting their daily life needs and problem solving skills. The environment and materials which are offered to the children, all kinds of activities in daily life such as games which are played with children, the communication with children, the attention and support which are given to the acquisition of language skills, the value which is given to reading, the interest which is shown to the children by the adults with whom they live together in the family and their immediate environment are accepted as the leaders of learning reading-writing and these constitute the early literacy phase (Wilson & Lonigan, 2010).

Early literacy gains begin with birth or even before birth. Social behaviors in newborn babies are limited, instead there are reflexes and primitive behaviors. Babies use them in communication with the people around them through the meaningful and controlled development of reflexes and primitive behaviors, and thus communication is initiated. The first communication way of babies is to cry and they express themselves in this way. According to Wolff (1969), babies can express anger, pain and interest with differentiated cries. According to Fifer and Moon (1995), while in the womb, the fetus perceives the mother’s voice and can

hear the musical rhythms. According to Ainsworth (1997), the main source of communication between mother and baby is emotions in this period. According to Peppers and Knapp (1980), mother-baby attachment begins in the prenatal period and prenatal factors are also very important in postnatal mother-child communication.

Wise and Sevcik (2012) stated that children are exposed to various linguistic information while in the womb. Even a four-day-old baby prefers to listen to their native language instead of a foreign language. According to Çiçek (2020), the sounds made by newborns manifest themselves with different tones of crying. Babies start making voices with open vowels like “aaa, ooo, eee” in the second month and these voices that they make unconsciously are a preparation for future words and sentences.

The first stage of development in terms of expressive language is the first sounds the baby makes. Babies begin to make sounds and express their needs by crying. In time, cries and sounds change and become a form of communication. Casby (2003) states that all babies learn language by coordinating and altering movements such as making sounds, screaming, holding with hands and hitting, and develop them through play. In the behaviorist theory, the sounds which babies make as a result of imitating the speech of the adults around the baby and reinforcements provided by adults are supported, and in this way, they indicate that language acquisition has started to develop. Kol (2011), babies learn the language by repeating the sounds they make to get what they want, that is, babies learn language by imitation. Accordingly, while the sounds reinforced by the family of the babies or other individuals around them are learned, the unreinforced sounds fade. Besides reinforcement, imitation also plays an important role in language learning.

The baby, who doesn't know reading-writing from birth, starts to acquire listening and speaking skills in the context of their age and developmental characteristics. According to Morrow (2005), the development of reading-writing is a lifelong process that begins before children start school and even from the first years of life. Riley and Reedy (2003), from the moment children are born, they are in an environment full of writing and they begin to learn their first knowledge of reading-writing in this environment. Hoff (2006), primarily, receptive language skills develop in babies. Since their expressive language skills are not developed, they cannot speak at first, and it is necessary to talk to babies for the development of language skills and a healthy communication.

Güneş (2010), the words and tone of voice of the mother communicating with her babies are important. Mother's speeches, lullabies and songs she will sing support babies' learning by listening, thus improving the language and mental skills of babies from an early age.

Since birth, the need for babies and adults around them to communicate with each other for various reasons constitutes the basis of language development for babies. Regardless of the purpose of these kinds of communication activities, after all, it should be evaluated as the realization of the dimension of comprehension with listening skill, which is one of the language skills, and expression with speaking skills. Verbal communication is the most basic communication tool between people. Verbal communication is also the most effective form of communication. In the case of babies, it is ensured that the communication skills of babies are supported by activities such as naming the people, objects, events and actions in their immediate environment and making daily, natural conversations. In this context, these acquisitions realized in the early period are the precursors of reading-writing, and are within the scope of the early literacy process. According to Chomsky, language has many functions. One of them is communication (Denkel, 1995). According to Yapıcı (2004), egocentric speech is not communicative. Even though this is the case, the purpose of the child's speech in the self-centered (egocentric) speech period is to make the individuals in front of them listen to the speech, but still children contribute to their language development by talking about themselves.

Formal reading-writing education is not given until starting primary school. From birth, comprehension and expression skills develop and form a literacy cycle until the beginning of formal reading-writing education. These activities and studies constitute the basis of learning to read and write, and will affect the entire life of the child, including the educational life. According to Whitehurst and Lonigan (2001), the knowledge that children gain and language skills that they acquire about literacy from the first years in the early period facilitate the subsequent education process and reading skills.

From birth, the studies that parents will do within the context of language skills are in the scope of early literacy and it is of great importance for children to acquire various skills and increase their competence in this field.

In the early literacy period, when parents read books to babies or when they read books with children as they get older, children develop awareness of how to keep the book, how to read with a certain speed and intonation, and

how to turn the pages. These acquisitions realized in the early literacy phase contribute to improving the reading skills of reading-writing. Children's books have an important place in supporting these reading skills that will form the basis of reading-writing, but the vast majority of children do not sufficiently experience book reading activity from an early age. Especially families with low socio-economic status are at a disadvantage in this regard (Tabors, 1997).

If a book reading activity is carried out in the early literacy period, a great support is given to reading-writing. That is, the development of reading skills in children is gradual and sequential. Touching the pictures of the objects they know in the book, showing the picture of an object they know in the book, saying the names of the objects they know in the pictures in the book are some of these. These skills, which contribute to literacy in the early literacy period, should be evaluated prospectively. Harris and Sipay (1990) reading is a meaningful interpretation of written language; Ontorio (2003) reading is the process of adding meaning to written text, and effective first reading activities enable children to become good readers who understand what they read, are able to apply their knowledge and skills to new situations, and have a strong desire for reading.

In the early literacy stage, it is necessary to include a lot of interactive reading instead of traditional reading. Because interactive reading is based on dialogue and includes processes such as interacting, commenting, asking questions and answering between adults and children. Thus, expressive language develops in children and their vocabulary is enriched; by frequently talking and asking questions, it is ensured that they are an active element of this process, not that they are silent. The child is given the opportunity to learn while having fun and to be more active and free in this learning (Ergül et al., 2016). With interactive book reading, children's expressive and receptive language skills improve, as well as their language skills such as print awareness and sound awareness.

In the early literacy stage, if adults always take into account that they support children's literacy skills while reading books to children, they will give children a gradual support. What is meant by gradual support is that adults support and guide the child at the beginning in an activity, and then gradually leave the management to the children so that they can act independently. In the early literacy phase, gradual support can be provided on all issues. For example, translation of some pages of a book on reading by the adult, translation of the

following pages by the child, interpretation of some pictures and stories by the adult, leaving the interpretation of other pictures to the children, making children guess what happens in the story or at the end of the story (Trawick-Swith, 2013).

Speaking, one of the language skills, is important for literacy studies and is widely used in the early literacy period and shows a rapid development. Yıldız (2003), speaking, which is the most important communication method among people, is of vital importance in meeting the need for verbal sharing. With this skill, feelings and thoughts are conveyed, knowledge and experiences are shared. According to Ağca (2001), children need to have speaking skills in order to express themselves, communicate, learn and develop their cognitive structures.

Speaking is a sub-dimension of the narrative skill, which is one of the language skills, and is verbal the transmission of emotions, thoughts, wishes, information and designs (Sever, 1997). Speaking is the process of expressing observations, thoughts, feelings and information through language. It is a basic language skill used at home, school and social relations. With this skill, feelings and thoughts are conveyed, knowledge and experiences are shared (Öz, 2006). Speaking is a skill that is frequently used both in education and social life. Along with listening, speaking forms an important part of the child's daily life. Adults should take into account children's speaking aspect and realize that speaking, compared to other skills, is more important in learning the language (Emiroğlu and Pınar 2013). Temel (1999) the first words children use are the names of important people from the family who are closest to them. These can be the names of mother, father, sibling, grandmother, grandfather. Again, these words can be about various foods, body parts, animal names, clothes, loved items, objects and actions in the environment that the child knows and recognizes. Vendryes (1968), human beings can only grasp the existence of objects by naming them.

One of the language skills of the early literacy stage is the writing skill. Writing is the second important dimension of literacy. Print awareness starts very early. The child, who gets acquainted with their immediate surroundings at birth, listens to the conversations around them as in speech development, observes their surroundings and thus tries to understand and make sense of what is happening. According to Lonigan et al. (2004), print awareness is the understanding of the connection between spoken language and written language and is a concept related to being aware of the written materials and symbols in the environment.

Writing is telling what we have heard, thought, designed, seen and experienced through writing. Like speaking, it is a way of communicating with others, expressing ourselves (Sever, 2004). Writing is the process of transcribing structured information in the brain (Güneş, 2007). Written expression skill is the most effective of communication tools. Writing is the memory of humanity; writing has a great role in finding and determining thoughts, enriching and sizing them (Özdemir, 1999). Writing is also a process that requires thinking. Thinking is the sum of products that emerge as a result of a certain accumulation (Yılmaz, 2008). Writing is the expression of feelings, thoughts, wishes and events with certain symbols in accordance with certain rules. Writing, by the nature of human beings, is one of the behaviors that manifests itself. Writing is also a necessity in terms of transferring the knowledge in every field to others as well as in the daily work of people (Özbay, 2007).

Writing in children begins and develops in the early period. When enriched environment for this purpose is provided, writing is supported and developed in children. In daily life, creating shopping lists with their family, playing games that are enriched in writing, drawing together, helps children to develop a perception of what writing is, and this provides the development of skills related to print awareness (Ezell & Justice, 2005).

The development of print awareness skills in children begins with birth when they begin to look around and adapt to the world by listening. At about one year old, as children look at the pages of storybooks, they begin to recognize the difference between writing and pictures and scribble on paper, walls and various places. If storybooks are read to them from infancy, their visual skills improve by examining the characteristics of the storybooks.

At the age of 2-3, children begin to recognize some signs, logos, letters and the like from the materials, books, labels, billboards and signboards around them, and to distinguish their spelling from each other. The names of their storybooks, the inscriptions on their toys, their own names written on their belongings makes this possible. During this period, they understand that writing is also a means of communication, as they can easily follow the story along with the voice of the person reading the story in the process of reading the storybooks. In fact, children can start writing their own articles during this period. A three-year-old child scribbles next to a picture on his own and says that this is their name. This writing is a good example that print awareness is developing. In these random scribbles, if the direction of the scribble follows a process from left to right over

time, this indicates that the awareness of the direction of writing is also gained (Çetin, 2019).

The physical process of writing in learning reading-writing consists of skills such as holding a pencil, drawing lines, hand movements, and writing from left to right. In connection with this process, there are eight skills for children to be physically ready to write. These can be listed as the development of small muscle skills in children, hand-eye coordination, holding the necessary tools for writing, drawing basic lines, recognizing the direction of writing, understanding the direction of the letters in the alphabet (Eliason & Jenkins, 2003).

Children develop their skills pertaining to writing through the stimuli in their environment. Initially they confuse drawing and writing and produce messages in a variety of shapes and forms. When they read these written messages, their scribbles, they say whatever they want the text to say at that moment. This is the first stage of the development of writing skills. The child also develops writing skills in the process of pseudo reading, that is, the phase when they pretend to read written materials. At the same time, when they do writing activities, they develop their reading skills (Morrow, 2007). According to Vukelich et al. (2014), the writing development of children in the preschool period is evaluated in seven stages and listed as follows:

1. Writing by drawing: Since the difference between drawing and writing is not clear yet, children write at this stage by drawing. They treat these pictures they have made as if they were writing and pretend to read them.
2. Writing by scribbling: At this stage, the scribbles made by children show a continuous and wavy characteristics. They think they are writing with these scribbles.
3. Writing letter-like shapes: At this stage, children start making letters that look like letters but that children have created themselves.
4. Writing non-phonetic letter strings: At this stage, children start typing random letter strings. There is no letter and sound relationship between these letters and the message they want to convey.
5. Copying the texts around them: At this stage, children try to copy the texts they see in their surroundings.
6. Artificial coding: At this stage, the relationship between letters and sounds begins to be seen in children. Just as only one letter can be written for a syllable, almost all the letters in the word the child copies can be written too.

7. Traditional coding: At this stage, traditional writing is now started, and children start writing like adults with the help of proper grammar and spelling in their own language.

The studies and developments that children have made about writing since the early literacy period play a very important role in their learning writing and the written language system, and are among the important predictors of future literacy learning (Ezell & Justice, 2005; Spira et al., 2005).

One of the things that can be done to raise children's awareness of writing in the early literacy period is to teach the skill of using books. Every book has the name of the story, the names of its author and illustrator on its cover. With picture storybooks, children can observe and learn where these are located, that the pages of the book are turned from the front to the back, the texts are from top to bottom in the page layout and the writing direction is from left to right. Tompkins (2013) points out that the author and illustrator of the book are among the important elements that make up the book, and it is important that the names of the author and the illustrator should be mentioned by adults before starting to read the book. In terms of raising the writing awareness in children, it is also important for adults to show the writing direction with their finger while saying the names of the author, the illustrator and the title of the book. In addition, during the book reading activity, the book should be kept in a way that all children in the group can see, and the pictures of the page that is being read should be shown to the children simultaneously (Lynch-Brown et al. 2011; Neuman et al. 2007).

In the early literacy phase, all activities and experiences that are done consciously starting from the prenatal period are the precursors of literacy in a concrete way and ensure that literacy learning is easy and complete, as well as contributing to the acquisition of language skills.

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5.2 Preparation Phase for Reading-Writing

Language skills that develop in children in the early literacy stage are closely related to preparation for reading-writing. The acquisitions that children gain

in language skills in this process from the early period are both preparation for reading-writing and the basis for literacy.

Preparation for reading-writing covers activities such as verbal language, vocabulary, sound awareness, visual discrimination, print awareness and, in general, comprehension and narrative skills, which are considered to be the initiators of literacy. This phase is made up of preparation studies for reading-writing carried out formally in pre-school education at a certain stage while the early literacy phase continues. Preparation for reading-writing aims to enable children to both make an easy transition to the formal literacy learning process and to continue their literacy learning process successfully.

Trawick Smith (2014), in the preparation phase for reading-writing, preschool children can create stories, recognize and draw signs and symbols. Children also pretend to read books.

The skills that preschool children acquire in terms of literacy are planned and evaluated as the basic skills of their primary school literacy learning. Children who do not have these skills may have difficulties when they start learning to read and write (Justice & Ezell, 2001). For this reason, attention should be paid to the activities of preparation for reading-writing not only in nursery classes, but also in all age groups of pre-school education.

Preparation activities for reading-writing are activities that are included in primary school preparation activities and are carried out to facilitate the transition of children to primary school and to increase their level of readiness. Reading or writing is by no means intended to teach. The program does not teach reading-writing "(Ministry of National Education, 2013). Reading, writing and sound awareness can be created in children with preparation activities for reading-writing. Starting to learn literacy requires visual, auditory perception and mental, sensory and physical maturation and readiness such as motor coordination, especially fine motor, and sound awareness.

Reading-writing preparation activities in preschool education are important in terms of preparing children for literacy. Researches conducted also support this. Şimşek (2011), a significant increase was found in print awareness and writing skills in children as a result of the preparation and support of print awareness and writing preparation activities in preschool period. Saracho, (2004,) if sufficient space, necessary materials and time are provided for play in the classroom, if children's foundations of play are developed, rehearsals of dramas are implemented well, if the teacher guides children's attention and

learning through modeling and interaction, the preparation phase for reading-writing supports the development of literacy in children.

In order to facilitate the transition of children to primary school and to prepare them for literacy education, it is necessary to frequently include preparatory studies for reading-writing in pre-school education. Showing and printing the letters don't exist in the program. In addition, preparation for reading-writing should not only be considered as desk-based activities such as book, concept, and drawing activities. It should be carried out with different activities such as art, drama, music, games, etc. (Ministry of National Education, 2013).

Preparation studies for reading-writing are very comprehensive and these studies include exercises such as audio-visual perception studies, enhancement of vocabulary capacity, development of expressive language skills, understanding and following the instructions as desired, developing fine motor skills, etc.

Preparation studies for reading-writing are a process that children naturally participate in the preschool period before they start primary school (Morrison, 1998). According to Albrecht and Miller (2004), in the preparation process for reading-writing, children enjoy listening to the storybooks read and talking and discussing the story. Because of the development of print awareness, they begin to understand that printed materials have a message. They make literacy attempts, they try to recognize signs and signposts around them, and the preschool period is the fundamental period for these experiences to come true.

Although the literacy skills of individuals improve throughout their lives, the preschool period is the most important period. Children's desire and skills for reading-writing can be increased in the preparation phase for reading-writing by creating environments where speaking, reading, writing, playing and listening activities will be done (NAEYC, 1998). Also at this stage, it is necessary to show children the relationship between spoken and written language, and the relationship between letters, sounds and words. When children communicate taking language functions as a model, they can better understand the link between verbal and written language (Gunn et al., 1992).

The studies conducted in the preparation phase for reading-writing prepare children for the literacy education to be carried out in primary school. Preschool teachers should plan and start education by observing children's knowledge and comprehension levels (Bloch, 2000; Gunn et al., 1992). Preschool teachers need to do activities that will contribute to the development of children's preparation

for reading-writing skills (Bodrova & Leong, 1996). Word games and games that help children find sounds in rhyming words are important to help children learn sounds in the language. Recognizing rhyme in the preparation phase for reading-writing is a good precursor for subsequent reading skill (Soderman et al., 2004).

Starting from the preparation phase for reading-writing, it is necessary to encourage children to use materials such as pencils, paper, paints, handicraft papers, scissors, glue, play dough and toys such as wooden cubes, puzzles (Kılıçarslan, 1997). In this period, meaningful reading activities such as reading and telling different storybooks to children, making them interested in reading, writing stories together, making books and participating in dramatizations can be organized (Girgin, 2003).

5.3 Reading-Writing Phase

When the historical process of literacy was examined before explaining the last phase of the “EL-RW Process Chart”, the literacy phase, children were not generally taught to read and write before starting primary school and the first grade of primary school would be accepted as the starting year of literacy. Because reading-writing is the beginning, it forms the basis of the entire education system. The success of the children depends on the success of the teaching of reading-writing carried out in the first grade. The effect of the teaching of reading-writing, which is carried out unsuccessfully in the first grade, continues until the next grades. Just as one cannot be a successful student without a successful teaching of reading-writing, it is not possible to be a good literate in the following years. Children who understand what they read well can progress rapidly in all lessons. It should not be expected that those who are insufficient in reading comprehension will be able to be interested in the subjects, understand what they read in the textbooks, and therefore be successful. Today, the method according to which literacy education should be given to children and the advantages of the methods over each other continue to be a matter of debate.

The aim of literacy is not to provide students with literacy skills in any way, but to make them gain good reading-writing skills according to contemporary methods and techniques that take into account the learning characteristics of the child. Whether teaching reading-writing is taught from sound, sentence or any other method, the important thing is to choose and use the method suitable for

the structure of the language in question and to reach the gains. The important thing is that children can use the language correctly, beautifully, effectively and fluently with reading-writing education.

According to Kapkın-Yener (2008), as a result of literacy, cognitive skills such as comprehension, sequencing, questioning, relating, and predicting, which will be used by individuals throughout their life, improve. Therefore, literacy education is not limited to basic reading-writing skills, but also fulfills an important function in developing mental skills such as thinking, comprehension, sequencing, classification, questioning, relating, analyzing, synthesizing and evaluating.

Reading, which is one of the components of reading-writing and one of the four language skills, starts with the perception of lines, letters and symbols. After the perception process, by focusing the attention, words and sentences are understood and the information that is of interest and required is selected. The selected information is passed through various mental processes. The processed information is combined with preliminary information and reinterpreted with the help of the visuals presented in the text (Ministry of National Education, 2005).

It can be said that the basis of the language lesson is reading-writing along with all lessons. The literacy education process is as critical as it is important, and it is the most important stage in a child's education life. This process is a process in which the child's reading comprehension, fluent reading, reading pleasure and proper writing skills, which the child will need throughout their lives, are acquired and the foundations of which are laid. Studies have shown that individuals who acquire the desired literacy skills have high academic achievement, but a mistake made in this period not only causes the child to learn the literacy mechanism late or wrong, but can also lead to irreparable consequences (Ünüvar and Çelik, 1999; Bloom, 1979; Fidan and Baykul, 1994).

6. Result

Early literacy and reading-writing are the beginning of a lifelong process. The skills acquired in the early literacy period are important as they are precursors of reading-writing and directly affect learning reading-writing. A qualified reading-writing education has an importance affecting academic success and all areas of life, including profession. Therefore, these stages should be supported in accordance with their importance.

In reading-writing, children are expected to make complete linguistic sounds, to form the letter-sound relationship correctly, to recognize words and to improve their vocabulary, to form sentences, to read and write letters, syllables, words and sentences correctly. Teaching reading-writing is a special discipline that includes actions and activities aimed at grasping the mathematics and logic of the language by combining the signs of the written language with the signs of the spoken language. Research has revealed that children make many learning mistakes regardless of the method started with in teaching reading-writing. However, the aim of teaching reading-writing is that children can use the language correctly, beautifully, effectively and fluently. Therefore, the conscious and comprehensive fulfillment of the stages in the early literacy and reading-writing process scheme ensures that learning reading-writing is carried out both easily and in accordance with the purpose. No phase should be seen as trivial, but should be supplemented with as rich stimuli and media as possible. From the birth of the child on, adults in the immediate environment and educators in the following period should give due importance to early literacy and reading-writing, as the subject is sensitive and will affect the whole life.

Children will use reading-writing lifelong and by using these skills, they will develop themselves individually and socially and will be able to communicate effectively. Therefore, reading-writing should be structured in an integrity that includes knowledge, skills and values (Ministry of National Education, 2018).

The reading-writing interest and support of parents and adults around the child directly affects the child. The reading-writing interest and support of parents and adults around the child directly affects the child. Spending good time with the child, both in the acquisitions that will lead to reading-writing and in the literacy stage, will affect the child's development of positive attitudes towards reading-writing, and more successful results can be obtained. Talking with the child on different topics appropriate for their age, listening to them and making them talk, playing games like riddle, rhyme, taboo etc., choosing books, magazines, etc., which is suitable for their age and development characteristics, reading them with the child, the child's observing and perceiving this process as a part of social life, thinking over books, asking questions and chatting together, reading incoming letters, writing letters together, cooking according to the recipe help children develop a positive attitude related to reading-writing (Aşıcı,2005).

Teachers and parents become models for children with their reading strategies, behaviors and skills while reading books to children. In reading, first

of all, the book is introduced to children. The title, author, pictures, cover, etc. of the book are explained to children. The children are asked to guess the topic of the book, then the book is read to the children in an appropriate way. By asking questions to children, their thinking and commenting skills are developed and they are enabled to establish a relationship between the content of the book and daily life, to read and describe the text by looking at the pictures of the book and guessing the writings (Erdoğan, 2017).

It is necessary to talk to children at every opportunity, and their speech should be made to feel valued, eye contact should be made when talking. Using expressions such as gestures, facial expressions, tone of voice, etc. while speaking, it can be ensured that they take them as models.

Books for babies and children, children's libraries are extremely important before and after reading-writing. It is known that books of different genres, chosen in accordance with their level of development, contribute greatly to their language skills development and reading-writing. Lullabies, folk songs, poems, riddles, rhymes, tales, counting-out games, jokes and ballads in mother tongue education introduce children to the vocabulary of the mother tongue. These literary works contribute to the competent use of the mother tongue by the child from birth to advanced ages. These are the tools that teachers and parents can frequently refer to in the early literacy period.

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CHAPTER X

CURRICULA LEARNING OUTCOMES AND EPISTEMOLOGICAL SCOPE IN TURKEY

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1. Introduction

The aim of the educational institution inherent in historical and contextual conditions requires an interdisciplinary epistemological method that encompasses individual, society, culture, nature, science, and production. When the educational philosophies that offer different approaches to this interdisciplinary epistemological method of educational goals are examined, Ornstein and Hunkins (2004), Wiles (2005), McNeil (2006), Gutek (2006), Ornstein (2007), Wiles and Bondi (2007), Arslan (2007) and Null (2011) provided their invaluable insights into some important issues such as perennialism, progressivism, experientialism, reconstructivism, and existentialism. According to them, perennialism includes raising rational people by educating the mind, universal education based on reality and rationality. They also noted that essentialism includes supporting the intellectual development of the individual, empowering the individual in skills and knowledge. As for progressivism, they thought that it supports democratic social life processes with progressive learning experiences based on social participation; experientialism includes the sharing of life experiences to discover and develop society. From their perspectives, reconstructivism is considered to include the education of change

and social reform to improve and rebuild society. Regarding existentialism they assumed that it includes approaches for individuals to discover their own knowledge, place in society, and their own meanings. Hence, epistemological references of educational philosophy has a pivotal role in assessing curriculum approaches. Regarding programme approaches, Posner (1992), Walker (2003), Ornstein and Hunkins (2004), McNeil (2006) and Null (2011) emphasised that traditionalist approach focuses on the most important aspects of culture that needs to be protected. In addition to this, they argued that experiential approach focuses on experiences necessary for healthy individual development. Relative to disciplinary field approach, they reported that this approach focuses on disciplinary field knowledge content, whereas behavioural approach focuses on defining learning and what the individual who completes the programme can do. Besides, they assumed that systematic approach was about the relations between the elements that make up the programme as a system. On the other hand, they noted that cognitive approach calls attention to how individuals can learn to think more productively and creatively in meaning to the world, while humanist approach was thought to focus attention on individual-oriented, individual development, respect for others and the joy of learning. As well, as for reconstructive and radical approach, they put emphasis on theoretical criticism in the socio-political field. Given the educational objectives, it is imperative that these theoretical references should play a crucial role in scrutinising those educational objectives.

Concerning the factors that are effective in determining educational aims, Demeuse and Strauven (2016) highlighted that every society tries to transcend the age and create a better future by developing the moral, intellectual and social norms for an ideal human profile as the values that individuals should have. On educational goals related to social goals, Posner (1992) pointed out the necessity of including personal development, socialisation, economic efficiency and high-level learning. Brandt and Tyler (2007, 1983) mentioned that educational goals should reflect the nature of knowledge, society and individual. Tyler (2014) accentuated the significance of current living spaces outside the school. In the same vein, the 1918 Principles Declaration (cited in Nodding, 2016) underscored the importance of health, family, basic operations, profession, religion, production-consumption, citizenship, and ethical character. Bobbit (2017) pointed out that goals which are the instruments of social development and progress should be broad enough to include parts that make up human life

based on society. In terms of contemporary world requirements, OECD (2018a, 2018b) regarded the knowledge, values, attitudes, and skills (including the sensitivity to local and global problems in exploring the world, understanding one's own and others' perspectives and worldviews, openness to cultural differences and interactions in communication of ideas, effective presentation of ideas) in four areas as an incentive of education aim to take action in social welfare and sustainable development.

When taking into consideration terminological structure related to educational purposes, Oliva (2005) and Brandt and Tyler (2007) mentioned that although different terms (outcomes, aims, ends, purpose, functions, goals, and objectives) are synonymously used, these terms in language have some pedagogical distinctions. The hierarchical three levels of these concepts are remarked as level 1 (broad objectives), level 2 (general but more specific than level 1), and level 3 (concrete behavioural expressions) by Wiles and Bondi (2007). Brandt and Tyler (1983) listed another hierarchical relationship as system goals, programme goals, lesson goals, and teaching goals ranging from general to specific. Ornstein and Hunkins (2004) listed this hierarchical flow of relationships as philosophy, aims, goals, and learning outcomes. Posner (1992) asserted that educational goals take part within educational aims related to social aims, learning goals within educational goals, learning objectives as to the lesson or unit within learning goals in this hierarchical relationship. With regards to the hierarchical relationship of aforementioned terms, Posner (1992), Oliva (2005) Wiles and Bondi (2007) defined that educational aims as general expressions both leading education throughout the country and guiding the programme based on planning in a very broad and long-term process. Goals are defined as general expressions that are more specific than objectives, but they do not contain success or expertise criteria and cannot be measured. They are general indicators of certain learning achievements to be achieved and constitute a philosophical basis for learning outcomes and determine the content of the programme. Learning objectives, on the other hand, are described as expressions showing specific programmed student behaviours and concrete learning outcomes of the student based on observable success criteria. Considering the relationship of goals and objectives here with the individual and learning in terms of the theory of goals, Schunk (2014) claimed that goal theory includes achievement-oriented motivation approach, and that a goal-oriented learning behaviour includes self-efficacy perception, motivation, perceived development, and success.

Posner (1992), Ornstein and Hunkins (2004), Wiles (2005), Wiles and Bondi (2007), and Schunk (2014) expressed the classification of educational objectives as taxonomies in the field. In this sense, according to Bloom (1956) and Krathwohl (1964) educational objectives are grouped into three categories - cognitive, affective, and psychomotor domains. Jonassen and Tessmer (1996) regard educational objectives as integrative, whereas Gagne (1977) considers them to be the taxonomies of learning products. Anderson and Krathwohl (2014) stated that the two-dimensional taxonomies they developed as a revision of the Bloom taxonomy including cognitive processes and types of knowledge. They mentioned that a goal consists of two dimensions as a noun and a verb, adding that verb contains the cognitive processes of the target, and the noun contains the information for learning.

The historical and contextual reality, needs and problems of the contemporary world, and the epistemological inclusiveness of educational objectives create an area of research. In this respect, upon the examination of the relationship between contemporary world reality and educational system and aims, Lauster (2000) expressed that the education system sees its task as providing information and focuses on repeating what has been produced rather than producing something. However, he stated that the mission of the school is to develop intelligence and creative abilities. Perkins (2016) articulated that traditional education is effective in spreading knowledge, but it is insufficient in the formation, organisation and transfer of knowledge, and it does not enable students to create, disseminate, organise, transfer, and act. On the other hand, within the framework of the historical development of education, Bauman (2020) described the three education levels defined by anthropologist Bateson. Education at the first level is considered as a transfer of knowledge to be memorised. Education at the second level is defined as the understanding of the “cognitive framework” that will enable the absorption of future information and its integration with other information. Education at the third level implies an understanding that breaks down and reorganises the dominant cognitive framework, or even eliminates it entirely without replacing it with any components. In international arena, UNESCO (1998, cited in TEDMEM, 2015) thus identifies learning for knowledge, learning to act, learning to exist and learning to live together as main objectives of contemporary education. In the same vein, OECD (2018a, 2018b) defines knowledge, values, attitudes, and skills (including exploring the world, openness to understanding different

perspectives, communication of ideas, and taking action) as the main objectives of contemporary education. In this respect, whether the cognitive quality and knowledge structures in the learning outcomes of curricula in Turkey meet the needs of the contemporary world are an issue that requires a holistic analysis in terms of science paradigms, philosophy of knowledge, sociology of knowledge, and nature of learning.

1.1 Purpose and Importance of the Research

This study aims to discuss epistemologically holistic findings from the learning outcomes of the curricula at different educational levels in Turkey in the light of contemporary world requirements. To this end, the researcher is seeking an answer for the following questions: 1) what is the scope of curriculum learning outcomes at different educational levels based on disciplinary fields in terms of knowledge types? 2) What is the epistemological scope of the essential cognitive qualities and types of knowledge in the dimensions of science paradigms, philosophy and sociology of knowledge, and the nature of learning?

The research may add weight to the idea that epistemological approach is of great significance to revisit the structure of learning outcomes of curricula in Turkey in accord with contemporary world requirements and by bringing these issues up for discussion for the first time, which may make substantial contributions to the field of education.

2. Method

This is a descriptive study to reveal the current situation regarding the epistemological analysis of learning outcomes of curricula at different educational levels in Turkey. The researcher employed a holistic multi-case research design to gather research data including a holistic perspective at three education levels. This holistic multi-case study included learning outcomes as to the same discipline area courses at three different education levels related to each other in terms of purpose and function. In this respect, the research included the perspective of the learning outcomes of the courses in the same discipline at different education levels in the vertical dimension, whereas it covered the interrelated analysis of the learning outcomes of different courses in the same education level in the horizontal dimension (Akar, 2016; Akturan, 2008; Baş, 2008; Robson, 2015; Teddie and Tashakkori, 2015; Yıldırım and Şimşek, 2018).

2.1 Research Data

The technique of stratified sampling based on random sampling was employed to gather research data within three education levels in Turkey. Hence, primary school, middle school, and secondary education levels were chosen as layers of this research. In this sense, one course from each of the 3rd, 6th and 10th grades related to the social sciences, linguistics and natural sciences sub-layers was selected. Then, the learning outcomes of the last two semesters were comparatively analysed to reveal the status quo and trend of the same units at three education levels by choosing one course from three disciplines. In the study, the criteria for the selection of the intermediate classes were that they fully reflected the education level and that the selected courses did not include the entry level of the relevant discipline (Akturan, 2008; Başı, 2008; Robson, 2015; Teddie and Tashakkori, 2015; Yıldırım and Şimşek, 2018).

2.2 Collection of Research Data

Within stratified sampling used in the study, Table 1 demonstrates curricula information regarding the last two semesters' (2009-2015 and 2018-2019) courses selected from three education levels and three different disciplines.

Table 1: Curriculum examined according to education levels

Class, Lesson, Unit-Theme		Curriculum Information
Primary (3.Grade)	Life Science 3 “My School Excitement”	“Primary School Life Studies Curriculum” (MEB, 2014a, 2018d)
	Mathematics 3 “Numbers, Geometry, Shapes”	“Primary and Secondary School Mathematics Curriculum” (MEB, 2009b, 2018a)
	Turkish 3 “Writing-Speaking”	“Primary and Secondary School Turkish Curriculum” (MEB, 2009a, 2019)
Middle (6. Grd.)	Turkish 6 “Speaking” “Emotions”	“Primary and Secondary School Turkish Curriculum” (MEB, 2015b, 2019)
	Science 6 “Creatures and Life” “Systems in the Body”	“Primary and Secondary School Mathematics Curriculum” (MEB, 2013a, 2018c)
	Social Studies 6 “Power, Government, Society” “Democracy”	“Primary and Secondary School Social Studies Curriculum” (MEB, 2009c, 2018b)

High (10. Grade)	Turkish Language and Literature 10 “Writing” “Speaking”	“Secondary Education Turkish Language and Literature Curriculum” (MEB, 2015a, 2018g)
	Geography 10 “Human Systems” “Population”	“Secondary Education Geography Curriculum” (MEB, 2014b, 2018f)
	Biology 10 “General Principles of Inheritance “	“Secondary Education Biology Curriculum” (MEB, 2013b, 2018e)

In the Table 1 shows research data in terms of education levels and discipline areas. Three lessons were chosen from each level as follows; life studies, mathematics, Turkish from the third grade at primary school level; Turkish, science, social studies from the sixth grade at middle school level; Turkish language and literature, geography and biology from the 10th grade at the high school level. The data collection of the selected courses from the last two semesters’ curriculum was carried out in five stages for each unit: (i) The determination phase, the unit learning outcomes of the last two semesters of the lesson were determined. (ii) The writing phase, the learning outcomes in the unit were written directly to the prepared analysis tables by adhering to the original. (iii) The examination phase, the cognitive qualities and knowledge type of the learning outcomes in the unit were determined. (iv) The coding phase, the learning outcomes of the unit was coded based on the cognitive qualities and information type analysis categories. (v) The control and correction phase, the analysis table of the unit’s learning was printed and the content of the outcomes, cognitive qualities, and scope of knowledge type as well as coding were re-examined. This five-step process was conducted separately for the learning outcomes of all units, which took approximately three weeks for each unit.

Since data collection process of the current study covers the examination of official data and documents open to the public instead of data collection techniques like interview and observation, the researcher did not seek approval from a research ethics committee.

2.3 Collection of Research Data

In the research, the researcher used content and discourse analysis to conduct the analysis of the learning outcomes in the related curricula through document analysis. Depending on the data collection process, the researcher did content

analysis of each unit in four phases. The four-phase analysis followed by the researcher was: a) determining the sentence, word, judgement and meanings of the objectives (cognitive quality, knowledge type) in the determined units as the analysis unit; b) Analysing the analysis units in the outcomes into the cognitive qualification and knowledge types categories of Anderson and Krathwohl (2014) as determined analysis categories; c) coding the content analysis of the outcomes, d) ensuring reliability and validity in the content analysis process. In the process of data analysis the researcher employed frequency, categorical, relational, evaluative, and interpretive content analysis techniques (Akturan, 2008; Bilgin, 2006; Gökçe, 2006; Robson, 2015; Yıldırım and Şimşek, 2018).

In the study, depending on the content analysis of the curriculum outcomes, the interpretation and structuring phase of discourse analysis were taken as a basis in the epistemological analysis. In the interpretation phase, the relationships between prominent words, sentences and judgements related to cognitive qualities and knowledge type are interpreted in the context of science paradigms, philosophy and sociology of knowledge and learning. In the structuring phase, features of learning outcomes and their epistemological scope was examined in macro structure (Akturan et al., 2008; Bilgin, 2006; Baş, 2008).

<p>The Nature of Learning Piaget, cognitive constructivism - Vygotsky, social constructivism - Glaserfeld, constructivism - Bruner, cognitive structures -</p>	<p>Science Paradigms - Logical positivism, verifiability - K. Popper, falsifiability - T. Khun, scientific paradigms - Fayerbend, methodological plurality</p>
<p>Learning Outcomes: Cognitive Qualities and Types of Knowledge</p>	
<p>Sociology of Knowledge Cultural codes contained in knowledge - Knowledge and powers relationship - Social inclusiveness of knowledge - Relationship knowledge and sociocultural differences -</p>	<p>Epistemology - Information object and subject relation - Source of Information - Accuracy of Information - Information Methodology</p>

Figure 1: Epistemological analysis codes of curriculum learning outcomes

In the study, in the validity-reliability dimension of the data, within the scope of structural validity; methodological, data source and theoretical variation validity types were used. Within the scope of methodological validity, the curriculum learning outcomes were analysed based on the cognitive qualities and knowledge

types classification of Anderson and Krathwohl (2014). In terms of data source diversification, different education levels and curricula of different disciplines from each education level were examined. In respect to theoretical diversification, epistemological analysis based on the conceptual codes determined in the fields of cognitive quality and content of knowledge types, science paradigms, philosophy and sociology of knowledge, and the nature of learning were performed. With regards to internal reliability, cognitive processes and types of knowledge categories as common analysis categories and sentence, words, judgements and their meaning as a common analysis unit were used in the study. About three weeks of time was thus spent in each unit by systematically conducting the processes of determining, writing, reviewing, coding, checking and correcting the outcomes in each unit. In order to ensure consistency regarding coding, two teachers (one from fields of science and one from social sciences) were consulted for the knowledge structures in the relevant units of the lessons at the middle school and high school levels. As for inter-coder reliability, an expert in educational sciences was requested to code the last-term learning outcomes of each unit. In case of a disagreement on coding between the researcher and the expert, consensus was reached. Within the scope of external reliability, the analysis findings of the learning outcomes, science paradigms, philosophy of knowledge and sociology were confirmed with different external perspectives based on codes determined in terms of the nature of learning (Gagnon, 2010, cited in Akar, 2016; Gökçe, 2006).

3. Findings

The findings as to cognitive qualities and knowledge types that are included in the curriculum learning outcomes of the last two semesters selected from the fields of linguistic sciences, science-natural sciences and the social sciences at the same grade level in the different education levels in Turkey are grouped under three headings as learning outcomes of primary school, middle school and secondary education curriculum.

3.1 Primary School Curricula Outcomes

From the third-grade level at primary school; the same unit learning outcomes were comparatively analysed in terms of knowledge type and cognitive qualities of the last two semesters (2009-2015 and 2018-2019) of life studies (school excitement theme), mathematics (geometry and numbers theme) and Turkish (writing-speaking theme) lessons.

Table 2: Life studies 3 curriculum outcomes for 2014-2018

Learning Outcomes <i>(The outcomes are direct citation from MEB, 2014b and 2018d)</i>	Learning Outcome Qualities
<p>2014 “Theme of School Excitement”</p> <p>“3.1. Explains why he/she should come to school prepared”</p> <p>“3.2. Acknowledges that the ... differences between students are natural”</p> <p>“3.3. Observes positive values ... when choosing friends and personal preferences”</p> <p>“3.4. Demonstrates appropriate behaviour while communicating... with teachers and friends”</p> <p>“3.5. Expresses his/her feelings appropriately in ... relationships with friends”</p> <p>“3.6. Expresses his/her opinion respecting the sensibilities of others...”</p> <p>“3.7. Discusses the advantages of democratic practices from examples in school life”</p> <p>“3.8. Realises the misconduct of his/her friends and exhibits behaviours that do not involve...”</p> <p>“3.9. The teacher uses problem solving skills when necessary in his relations with ...”</p> <p>“3.10. Draws a sketch of his/her school and class”</p> <p>“3.11. Researches and presents the history of his/her school”</p> <p>“3.12. The school... produces alternatives to solve problems that may arise when not using their belongings carefully”</p> <p>“3.13. Accepts that it is natural to win and lose as a result of the game”</p> <p>“3.14. Produces solutions to problems that may arise when the rules are not followed at school and applies the most appropriate solution”</p> <p>“3.15. Develops an optimistic perspective on school life”</p> <p>“3.16. Uses resources sparingly while performing his/her personal care.”</p> <p>“3.17. Consumes natural and healthy products for a balanced and regular diet”</p> <p>“3.18. Realises that his/her friends are responsible for protecting... as much as his/her own health.”</p> <p>“3.19. Expresses at school,... what should be done in case of an emergency”</p> <p>“3.20. Accepts that special days are suitable times for social sharing and produces alternatives for celebrations”</p> <p>“3.34. “Uses the concepts in the theme of My School Excitement appropriately in a way...”</p>	<p>Cognitive Quality</p> <p>Comprehension level: <i>(2014)</i> 3.1-3.2-3.6-3.7-3.13-3.15-3.18-3.19 <i>(2018)</i> 1.1-1.2-1.3-1.4-1.6</p> <p>Application level: <i>(2014)</i> 3.3-3.4-3.5-3.8-3.9-3.10-3.11-3.16-3.17-3.34 <i>(2018)</i> 1.5-1.7-1.8-1.9-1.10</p> <p>Creation Level: <i>(2014)</i> 3.12-3.14-3.20 <i>(2018)</i> 1.9</p>

2018 “Theme of Life at Our School”	Information Quality
“1.1. Realises his/her strengths and aspects that need to be strengthened”	
“1.2. Realises how his/her behaviour affects him/her and his/her friends”	<i>Factual</i>
“1.3. Realises how his/her friends’ behaviour affects him/her”	<i>Information:</i>
“1.4. Understands the issues to be considered in the friendship process”	(2014) 3.1-3.2-3.3-
“1.5. Draws a sketch of his/her class and school”	3.4-3.5-3.6-3.7-3.8-
“1.6. Realises the individual and social contributions of his/her school”	3.9-3.10-3.11-3.12-
“1.7. Willing to participate in social welfare... related work at school”	3.13-3.14-3.15-
“1.8. Expresses his/her wishes and needs regarding the school in a democratic way in the school environment”	3.16-3.17-3.18-
“1.9. Makes original suggestions for effective...use of school resources”	3.19-3.20-3.34
“1.10. Searches for the professions and their characteristics”	(2018) 1.1-1.2-1.3-
	1.4-1.5-1.6-1.7-1.8-
	1.9-1.10

Table 2 highlights the cognitive quality and knowledge type of the last two semesters (2014-2018) related to the Life Studies Lesson 3 curriculum. The 2014 curriculum includes the cognitive qualities of the 21 learning outcomes in the theme of school excitement, 8 levels of understanding (explains, accepts, comprehends), 10 outcomes application levels (observes, shows, expresses, discusses, uses, draws, presents), 3 outcomes creation levels (develops, produces). All of the learning outcomes as a type of knowledge include factual information (being prepared for school, student similarity and differences, choosing friends, relationships with others, respect for feelings, using school items, personal care, accidents and emergencies, special days, healthy nutrition, health protection, school rules, and democracy). The 2018 curriculum includes 5 outcome comprehension levels (realises, comprehends) in the cognitive qualities of 10 learning outcomes in the theme of school excitement, 4 outcomes implementation levels (draws, expresses, becomes willing, researches), 1 outcome creation level (makes suggestions). All of the learning outcomes as a type of knowledge include factual knowledge (strengths and weaknesses, behaviours and their effects on others, friendship relations, class and school sketch, school contributions, social assistance, democratic life, use of resources, professions).

Table 3: Mathematics 3 lesson 2009-2018 curriculum learning outcomes

Learning Outcomes <i>(The outcomes are direct citation from MEB 2009b, 2018)</i>	Learning Outcomes Qualities
<p>2009- “Theme of Number, Geometry and Measurement”</p> <p>“1. Three-digit natural numbers... and writes”</p> <p>“2. Indicates the digit names, ... values of three-digit natural numbers”</p> <p>“3. Rounds the three-digit natural numbers to the nearest ten-spot”</p> <p>“4. Compares two natural numbers less than 1000 and indicates the relationship using symbols”</p> <p>“5. Sorts up to five natural numbers less than 1000, from largest to small ... using symbols”</p> <p>“6. Counts six, seven,... nine each forward within 100”</p> <p>“7. Determines the relationship in a pattern... expands the pattern”</p> <p>“8. Indicates odd and even natural numbers”</p> <p>“9. Reads and writes Roman numerals up to 20”</p> <p><i>Adding with natural numbers</i></p> <p>“D.1. Adds without carry with natural numbers whose sums are at most three digits...”</p> <p>“D.2. Estimates the sum of two natural numbers and compares its prediction with the result of the process”</p> <p>“D.3. Collects at most two natural numbers whose sum does not exceed 100”</p> <p>“D.4. Solves and sets up problems that require addition with natural numbers “</p>	<p>Cognitive Quality</p> <p>Recall level: <i>(2009)</i> 1-2-6-8-9 <i>(2018)</i> 1.1-1.2-1.6-1.10</p> <p>Comprehension level: <i>(2018)</i> 1.8-1.9</p> <p>Application level: <i>(2009)</i> 3-4-5-7-D1-D2-D3-D4 <i>(2018)</i> 1.3-1.4-1.5-1.7</p> <p>Analysis level: <i>(2009)</i> 7-</p>
<p>2019- “Theme of Shapes, Numbers”</p> <p>“1.1. Reads and writes three-digit natural numbers”</p> <p>“1.2. Within 1000... Counts rhythmically, starting from a number, one by one, ten and floating forward”</p> <p>“1.3. Determines the digit names of three-digit natural numbers, ...”</p> <p>“1.4. Rounds most three-digit natural numbers to the nearest ten or hundred”</p> <p>“1.5. Compares up to five natural numbers less than 1000 and sorts them using a symbol”</p> <p>“1.6. Counts six, seven, eight and nine each forward within 100”</p> <p>“1.7. Expands and creates the number pattern with constant difference”</p> <p>“1.8. Understands odd and even natural numbers”</p> <p>“1.9. Expresses whether the sums are odd or even by examining the sums of odd and even natural numbers on the model.”</p> <p>“1.10. Reads and writes Roman numerals up to 20”</p>	<p>Information Quality</p> <p>Conceptual information: <i>(2009)</i> 1-2-6-8-9 <i>(2018)</i> 1.1-1.2-1.6-1.8-1.9-1.10</p> <p>Operational information: <i>(2009)</i> 3-4-5-7-D1-D2-D3-D4 <i>(2018)</i> 1.3-1.4-1.5-1.7</p>

Table 3 underlines the cognitive quality and knowledge type of the last two semesters (2009-2018) related to the Mathematics Lesson 3 curriculum. The 2009 curriculum includes the cognitive qualities of 13 learning outcomes in the theme of number and measurement, 5 learning outcomes levels (reads and writes, specifies, rounds up, counts), 8 outcomes application levels (specifies, orders, expands, operates, adds, solves). As a type of knowledge, 5 outcomes conceptual information (three-digit natural numbers and digit values, comparison of two natural numbers, addition in natural numbers), 8 outcomes operational information (ordering natural numbers, rhythmic counting, odd-even natural numbers, addition, problem solving). In the cognitive qualities of the 10 learning outcomes in the theme of natural numbers, the 2018 curriculum includes 4 outcomes recall levels (reads and writes, specifies, rounds, rhythmically counts), 2 outcomes comprehension levels (comprehends), 4 outcomes practice levels (determines, sorts, expands and creates). As a type of knowledge, 6 learning outcomes include conceptual information (three-digit natural numbers and digit values, odd-even numbers, rhythmic counting, Roman numerals), 4 outcomes operational information (comparing two natural numbers, sorting natural numbers, back and forth rhythmic counting, adding odd-even natural numbers).

Table 4: Turkish 3 lesson 2009-2019 curriculum learning outcomes

Learning Outcomes <i>(The outcomes are direct citation from MEB 2009a, 2019)</i>	Learning Outcomes Qualities
2009 – “Theme of Writing”	Cognitive Quality
“1. Uses words appropriately and according to their meanings”	Comprehension level
“2. Uses the newly learned words in writings”	<i>(2009) Writing; 8-9-10-11-15</i>
“3. Determines the appropriate title for his/her article”	<i>Speaking; 8-9-11-12</i>
“4. Writes events by order of occurrence”	
“5. Uses the types of words in his/her writings in accordance with”	Application level
“6. Includes the main idea in his/her articles”	<i>(2009)</i>
“7. Uses expressions that lead him/her to think differently in ...writings”	<i>Writing; 1-2-3-4-5-6-7-17-19-</i>
“8. Gives examples from his/her own life and daily life in ... articles.”	<i>Speaking; 1-2-3-4-5-6-7-10-13-14-15-16-</i>
“9. Gives supportive and explanatory examples by using ... articles”	<i>17-18-19</i>
“10. Makes comparisons in his/her writings”	
“11. Establishes cause and effect relationships in his/her writings”	

<p>“12. Writes articles based on his/her impressions and experiences”</p> <p>“13. Writes articles describing feelings, thoughts and dreams”</p> <p>“14. Writes articles introducing himself/herself, his/her family and”</p> <p>“15. Summarises”</p> <p>“16. Writes his/her thoughts on...about the character, the even that is interesting and attractive to him/her”</p> <p>“17. Writes questions”</p> <p>“18. Writes articles that explain whether he/she agrees with an opinion...”</p> <p>“19. Emphasises what, where, when, how, why and who...in articles”</p> <p><i>2009-Theme of Speaking</i></p> <p>“1. Speaks confidently “</p> <p>“2. In his/her speech, he/she tells the events in the order of their...”</p> <p>“3. Uses the newly learned words in his/her speech”</p> <p>“4. Supports his/her speech with visual presentation”</p> <p>“5. Speaks considering his/her audience and environment”</p> <p>“6. Emphasises the main idea in his/her speech”</p> <p>“7. Emphasises the information he/she cares about in his/her speech”</p> <p>“8. Gives examples from his/her life and daily life in his/her speeches”</p> <p>“9. Gives supportive and explanatory examples in his/her speeches”</p> <p>“10. Expresses thoughts about the speech, the content of the speech...”</p> <p>“11. Makes comparisons in his/her speeches”</p> <p>“12. Establishes cause and effect relationships in his/her speeches”</p> <p>“13. Puts forward whether he/she agrees with an idea or not”</p> <p>“14. Expresses his/her feelings, thoughts and dreams verbally”</p> <p>“15. Notifies the relevant people about his/her wishes, requests, likes...”</p> <p>“16. Introduces himself/herself, his/her family and environment”</p> <p>“17. Asks and answers questions to the audience while talking”</p> <p>“18. Asks questions to get information”</p> <p>“19. Emphasises what, where, when, how, why and who... speeches”</p>	<p>(2019) 4.1-4.2-4.3-4.4-4.5- 2.1-2.2-2.3-2.4-2.5</p> <p>Creating level (2009) Writing; 12-13-14-16-18</p>
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<p>2019- “Theme of Writing-Speaking”</p> <p>“4.1. Writes poetry”</p> <p>“4.2. Writes short texts”</p> <p>“4.3. Writes narrative texts”</p> <p>“4.4. Determines the title suitable for the content of his/her writings”</p> <p>“4.5. Writes short instructions”</p> <p><i>2019- Theme of Speaking</i></p> <p>“2.1. Uses words according to their meanings”</p> <p>“2.2. Makes impromptu speeches”</p> <p>“2.3. Talks about a specific topic”</p> <p>“2.4. Applies speaking strategies”</p> <p>“2.5. Participates in class discussions and conversations”</p>	<p>Information Quality</p> <p>Operational information</p> <p><i>(2009) Writing;</i> 1-2-3-4-5- 6-7-8-9-10-11-12-13-14-15-16-17-18-19</p> <p><i>Speaking;</i> 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19</p> <p><i>(2019) Writing;</i> 4.1-4.2-4.3-4.4-4.5</p> <p><i>Speaking;</i> 2.1-2.2-2.3-2.4-2.5</p>
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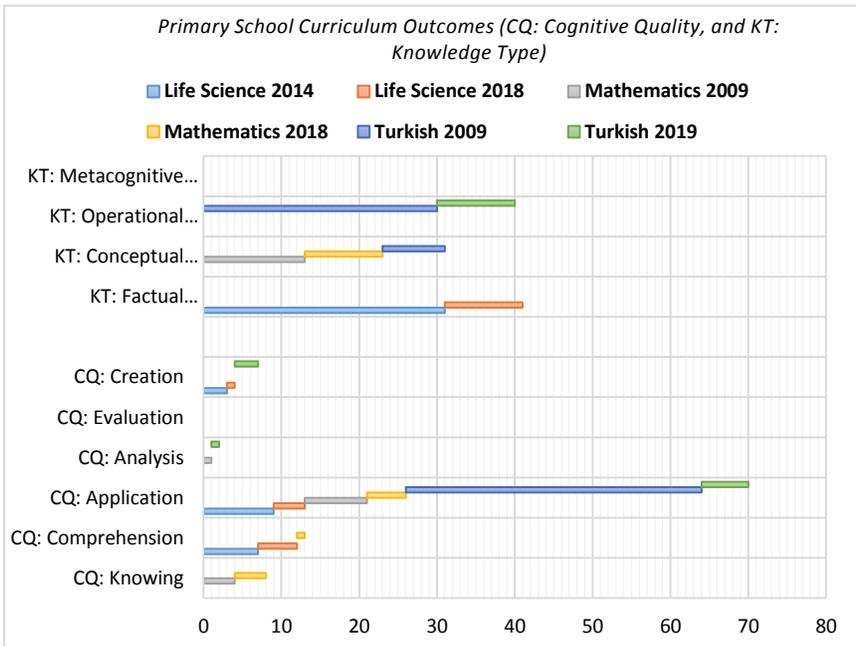
Table 4 stresses the cognitive qualities and knowledge type of the learning outcomes of Turkish Lesson 3 curriculum in the last two semesters (2009-2019). The 2009 curriculum includes 38 learning outcomes in the writing-speaking theme, 8 outcomes comprehension levels (gives examples, comparisons, establishes relationships), 25 outcomes practice levels (uses, writes, places, highlights, explains, supports, reveals, expresses, notifies, introduces), 5 outcomes creation level (writes). All learning outcomes as a type of knowledge include operational information (vocabulary, meaning in words, text creation, and speech). In the cognitive qualities of the 10 learning outcomes in the 2019 writing-speaking theme, 6 outcomes include application levels (writes, uses, makes, speaks, applies, participates), 1 outcome analysis level (determines), 3 outcomes creation levels (writes). As a type of knowledge, all learning outcomes include operational information (poetry, plain text, short instructions, word meanings, speaking strategies, discussion). The cognitive quality and knowledge type relationship matrix of the learning outcomes examined regarding the primary school level is presented in Table 5 below.

Table 5: The relationship matrix of primary school curriculum learning outcomes

Cognitive Quality		Knowledge		“Factual”	“Conceptual”	“Operational”	Meta-cognitive	Total / %
“Knowing”	2009-2015				Mathematics: 1-2-6-8-9			5 / .07
	2018-2019				Mathematics: 1.1-1.2-1.6-1.10			4 / .13
“Comprehension”	2009-2015		Life Science: 3.1-3.2-3.6-3.7- 3.13-3.15-3.18- 3.19					8 / .11
	2018-2019		Life Science: 1.1-1.2-1.3-1.4- 1.6		Mathematics: 1.8-1.9			7 / .23
“Application”	2009-2015		Life Science: 3.3-3.4-3.5-3.8- 3.9-3.10-3.11- 3.16-3.17-3.3.4		Mathematics: 3-4-5-7-D1-D2- D3-D4 Turkish-Writing: 8-9-10-11 Turkish-Speaking: 8-9-11-12	Turkish-Writing: 1-2-3-4-5-6-7- 12-13-14-15-16- 17-18-19 Turkish-Speaking: 1-2-3-4-5-6-7- 10-13-14-15-16- 17-18-19		56 / .78
	2018-2019		Life Science: 1.5-1.7-1.8-1.10		Mathematics: 1.3-1.4-1.5-1.7	Turkish-Speaking: 2.1- 2.2-2.3-2.4-2.5 Turkish-Writing: 4.5		14 / .47
“Analysis”	2009-2015				Mathematics: 7			1 / .01
	2018-2019					Turkish-Writing: 4.4		1 / .03
“Evaluation”	2009-2015							
	2018-2019							
“Creation”	2009-2015		Life Science: 3.12-3.14-3.20					3 / .04
	2018-2019		Life Science: 1.9			Turkish-Writing: 4.1-4.2-4.3		4 / .13
Total/ Percentage	2009-2015		21/.29		21/.29	30/.42		72 / .100
	2018-2019		10/.33,3		10/.33,3	10/.33,3		30 / .100

Table 5 demonstrates the learning outcomes of the last two semesters of curriculum related to discipline areas different from the primary school level. Besides, it reveals that 72 outcomes in three different lessons in the 2009-2015 period decreased by 44%, decreasing to 30 in 2018-19. When the learning outcomes of three different disciplines in the 2009-2015 period are compared in terms of cognitive qualification, the maximum agglomeration is at the application (78%) and the comprehension (11%) levels, while there is no gain in the outcomes level. When the learning outcomes in this period are compared in terms of knowledge type; the most aggregation is at the levels of procedural knowledge (42%), factual and conceptual knowledge (29%), and there are no outcomes in the metacognitive knowledge type. When the learning outcomes of three different disciplines in 2018-2019 period are compared in terms of cognitive quality, they are mostly at the level of application (47%) and comprehension (23%), and at least at the level of evaluation. In terms of knowledge type, it is equally distributed (33%) to factual, conceptual and operational knowledge types, and there are no outcomes in the metacognitive knowledge type. The examination of the learning outcomes at the primary school level in terms of cognitive quality and knowledge type is given in the following Graph 1.

Graph 1: Cognitive quality-knowledge type of learning outcomes in primary school curriculum



Comparing curriculum learning outcomes of courses from the primary school level in the last two terms (2009-15 and 2018-19) on Graph 1, the results revealed that there were 21 learning outcomes of Life studies lesson in the 2014 curriculum, whereas there were 10 learning outcomes of that course in the curriculum of 2018. Given the classification of educational outcomes of the course, the outcomes included the level of comprehension and application as a cognitive qualification, and factual knowledge as a type of knowledge. When taking into account Mathematics course, it was seen that the course had 13 learning outcomes in the 2009 curriculum, while it had 10 learning outcomes in the curriculum of 2018, with the outcomes including knowledge and application levels as cognitive qualities, operational and conceptual knowledge as a type of knowledge. As for the Turkish lesson, the graph demonstrated that there was a considerable decrease in the number of learning outcomes from 38 learning outcomes in the 2009 curriculum to 10 learning outcomes in 2019. Additionally, it was understood that the outcomes include the level of application and creation as cognitive qualities, conceptual and operational knowledge as a type of knowledge.

3.2 *Learning Outcomes of Middle School Curricula*

As three different disciplines from the 6th grade level in middle school; the same unit learning outcomes of social studies (power-government and society theme), science (living things and life theme) and Turkish (speaking-writing theme) lessons in the last two semesters (2009-2015 and 2018-2019) has been analysed comparatively in terms of cognitive quality and knowledge type.

Table 6: Turkish 6 lesson 2015-2019 curriculum learning outcomes

Learning Outcomes <i>(The outcomes are cited from MEB 2015b, 2019)</i>	Learning Outcomes Qualities
<p>2015- “Theme of Writing”</p> <p>“1. Expresses feelings, thoughts, dreams,... experiences by writing”</p> <p>“2. Uses concepts, proverbs and idioms that he/ she just learned...”</p> <p>“3. Writes by area of interest”</p>	<p>Cognitive Quality</p> <p>Application level: <i>(2015-Writing)</i> 1-2-3-4-5- 6-9-10-K1-K2</p> <p><i>(2015-Speaking)</i> 1-5-6-7-8-9-10-11-12-K1-K2-K3-K4-K5-K6-K13</p>

<p>“4. Keeps a book of poetry”</p> <p>“5. Keep a diary”</p> <p>“6. Compile the lyrics, texts and poems he/she liked”</p> <p>“7. Prepares articles for the school magazine and newspaper”</p> <p>“8. Shares what he/she writes with others... evaluations into account”</p> <p>“9. Creates an archive from his/her writings”</p> <p>“10. Participates in writing competitions”</p> <p>“D.1. Evaluates what he/she writes in terms of form and content”</p> <p>“D.2. Evaluates what he/she writes in terms of language and ...”</p> <p>“D.3. Evaluates his/her writings in terms of spelling and punctuation...”</p>	<p>(2019-Writing) 4.4</p> <p>(2019-Speaking) 2.1-2.2-2.3-2.4-2.5</p> <p>Evaluation level: (2015-Writing) 8-D1-D2-D3 (2015-Speaking) D1-D2-D3-D4</p> <p>Creation level: (2015-Writing) 7 (2015-Speaking) 2-3-4</p> <p>(2019-Writing) 4.1-4.2-4.3-4.5</p>
<p>“K.1. Understands and applies the spelling rules”</p> <p>“K.2. Uses punctuation marks in accordance with their functions”</p> <p><i>2015- Theme of Speaking</i></p> <p>“1. Does research on the topic of conversation”</p> <p>“2. Prepares speech text”</p> <p>“3. Plans his/her speech around a main idea”</p> <p>“4. Supports the main idea with helpful ideas”</p> <p>“5. Uses the ways of developing the thinking appropriate to the feature...”</p> <p>“6. Enriches his/her expression by using proverbs, idioms and rhetoric”</p> <p>“7. Uses visual, audio materials and different communication tools while presenting his/her speech”</p> <p>“8. Makes explanations about the subject before the speech”</p> <p>“9. Gives clear, adequate and correct answers to the questions asked during the speech”</p> <p>“10. Avoids the distracting details in his/her speech”</p> <p>“11. Ends his/her speech in the determined time and ... words of thanks”</p>	<p>The Nature of Knowledge</p> <p>Operational information (2015-Writing) 1-2-3-4-5-6-7-8-9-10-D.1-D.2-D.3-K1-K2</p> <p>(2015-Speaking) 1-2-3-4-5-6-7-8-9-10-11-12-D.1-D.2-D.3-D.4-K1-K2-K3-K4-K5-K6-K13</p> <p>(2019-Writing) 4.1-4.2-4.3-4.4-4.5</p> <p>(2019-Speaking) 2.1-2.2-2.3-2.4-2.5</p>

“12. Uses speaking methods and techniques”

Evaluation of his/her speech

“D.1. Evaluates his/her speech in terms of content”

“D.2. Evaluates his/her speech in terms of language and expression”

“D.3. Evaluates his/her speech in terms of presentation technique”

“D.4. Evaluates his/her speech in ...his/her voice and body language”

Application of the rules of speech

“K.1. Starts with expressions that are suitable to speak”

“K.2. Uses appropriate addressing expressions while speaking”

“K.3. Develops a speaking attitude suitable for his/her environment”

“K.4. Speaks in standard Turkish”

“K.5. Makes sentences in accordance with the rules of Turkish”

“K.6. Uses Turkish words instead of words taken from foreign...”

“K.13. Ends the conversation with appropriate expressions”

2019- “Theme of Writing-Speaking”

Writing

“4.1. Writes poetry”

“4.2. Writes informative text”

“4.3. Writes narrative text”

“4.4. Applies writing strategies”

“4.5. Uses graphics and tables when necessary to support what...writes”

Speaking

“2.1. Makes a prepared speech”

“2.2. Speaks impromptu”

“2.3. Applies speech strategies”

“2.4. Uses body language effectively in his/her speech”

“2.5. Uses words according to their meanings”

Table 6 emphasises the cognitive quality and knowledge type of the last two semesters (2015 and 2019) of the Turkish 6 lesson from the middle school level. In the 2015 curriculum, in the cognitive qualities of 38 learning outcomes in the writing-speaking theme, 26 outcomes application levels (express, use, write, hold, compile, prepare, create, participate, apply, do, plan), 8 outcomes evaluation levels (evaluate, consider), 4 outcomes creation levels (writes, prepares a text, plans). As a type of knowledge, all of the learning outcomes include procedural knowledge (expressing emotion, thought experience, idioms and proverbs, text and poetry compilation, research, speaking methods and techniques). In the cognitive qualities of the 10 learning outcomes in the writing-speaking theme of the 2019 curriculum; it includes 6 outcomes application levels (writes, applies, uses), 4 outcomes creation levels (writes, applies). All of the learning outcomes as a type of knowledge include procedural information (poetry and text writing, speaking, speaking-writing strategies, body language).

Table 7: Social studies 6 lesson 2009-2018 curriculum learning outcomes

Learning Outcomes (The outcomes are cited from MEB 2009c, 2018b)	Learning Outcomes Qualities
<p>2009 “Theme of Individual and Society”</p> <p>“1. Realises the multidimensionality of an event based on an example in his/her immediate environment”</p> <p>“2. Distinguishes fact and opinion”</p> <p>“3. Conducts research using scientific research steps”</p> <p>“4. Defends that solutions to a problem should be based on rights, responsibilities and freedoms”</p> <p>“5. Recognises the contribution of social studies his/her development as an active citizen of the Republic of Turkey”</p> <p>“6. Gives examples of the practices of Atatürk for the development of social sciences in our country”</p>	<p>Cognitive Quality</p> <p>Comprehension level</p> <p>(2009) 1-2-5-6</p> <p>(2018) 1.1-1.4</p> <p>Application level</p> <p>(2009) 3-4</p> <p>(2018) 1.3</p> <p>Analysis level</p> <p>(2018) 1.2</p>
<p>2018 Theme of Individual and Society</p> <p>“1.1. Recognises the contribution of social studies his/her development as an active citizen of the Republic of Turkey”</p> <p>“1.2. Explains the multidimensionality of an event based on an example experienced in his/her immediate vicinity”</p> <p>“1.3. As an individual who is aware of his/her rights, he/she acts in accordance with the duties and responsibilities required by the roles he/she takes in the groups he/she joins.</p> <p>“1.4. Gives examples of benefiting from his/her rights as a child and violating these rights”</p>	<p>Information Quality</p> <p>Conceptual information</p> <p>(2009) 1-2-3-4-5-6</p> <p>(2018) 1.1-1.2-1.3-1.4</p>

Table 7 places emphasis on the cognitive quality and knowledge type of the last two semesters (2009 and 2018) of the Social Studies 6 lesson from the middle school level. 2009 curriculum includes 4 outcome comprehension levels (realises, gives examples), 2 outcomes application levels (researches, defends) in the cognitive qualities of 6 learning outcomes in the contact of the individual and society. The scope of all learning outcomes as the type of knowledge includes conceptual knowledge (multidimensionality of the event, difference of fact and opinion, research steps, finding solutions to the problem, social studies and citizenship, Atatürk and social sciences). In the cognitive qualities of the 4 learning outcomes in the 2018 curriculum; it includes 2 outcomes comprehension levels (realises, gives examples), 1 outcome application level (acts appropriately), 1 outcome analysis level (explains). All of the learning outcomes as a type of knowledge include factual knowledge (social studies and citizenship, multidimensionality of the event, rights, roles, duties and responsibilities).

Table 8: Science 6 lesson 2013-2018 curriculum learning outcomes

Learning Outcomes <i>(The outcomes are direct citation from MEB 2013a, 2018c)</i>	Learning Outcomes Qualities
2013 “Theme of Creatures and Life”	Cognitive Quality
“1.1. Compares animal and plant cells in terms of their basic parts and functions”	Knowing level <i>(2018) 2.3.3-2.3.4</i>
“1.2. Discusses the views on the structure of the cell ... relating to technological developments from past to present”	Comprehension level <i>(2013) 1.1-1.3- 2.1-4.1-4.3-4.4-4.5</i>
“1.3. Explains the cell-tissue-organ-system-organism relationship”	<i>(2018) 2.1.1-2.2.2-2.2.3-2.3.1-2.3.2-2.3.5</i>
“2.1. Explains the structures of the support and movement system and gives examples of their functions”	Application level <i>(2013) 2.2-3.1-3.2-3.3-4.2-4.6</i>
“2.2. Researches and presents what needs to be done to protect the health of the support and movement system”	<i>(2018) 2.2.1-2.4.1-2.5.1</i>
“3.1. Shows the structures and organs that make up the respiratory system on the model”	Analysis level <i>(2013) 1.2</i>
“3.2. Explains the structure of the lungs and shows the gas exchange between alveoli and capillaries on the model”	

<p>“3.3. Discusses what needs to be done to protect the health of the respiratory system based on research data”</p> <p>“4.1. Explains the structures and organs that make up the circulatory system together with their duties”</p> <p>“4.2. Shows the microcirculation and systemic circulation on the diagram”</p> <p>“4.3. Understands the structure and functions of blood”</p> <p>“4.4. Understands the blood exchange between blood groups”</p> <p>“4.5. Realises the importance of blood donation for society by researching”</p> <p>“4.6. Discusses what should be done to protect the health of the circulatory system based on research data”</p> <p>2018 “Theme of Systems in Our Body”</p> <p>“2.1.1. Explains the structures of support and...system with examples”</p> <p>“2.2.1. Explains the digestive system... and the functions of organs using models”</p> <p>“2.2.2. Infers that nutrients must undergo physical (mechanical) and chemical digestion in order to pass into the blood”</p> <p>“2.2.3. Explains the functions of organs that help digestion”</p> <p>“2.3.1. Explains the functions of the organs that make up the circulatory system... using a model”</p> <p>“2.3.2. By examining the large and small blood circulation on a diagram ... explains its tasks”</p> <p>“2.3.3. Defines the structure and functions of blood”</p> <p>“2.3.4. Refers to the exchange of blood between blood groups”</p> <p>“2.3.5. Evaluates the importance of blood donation for society”</p> <p>“2.4.1. Explains the functions of the respiratory system ...using models</p> <p>“2.5.1. Summarises the tasks of the excretory system... and the organs by showing the organs on the model”</p>	<p>Information Quality</p> <p><i>Conceptual information</i> (2013) 1.1-1.2-1.3-2.1-2.2-3.1-3.2-3.3-4.1-4.2-4.3-4.4-4.5-4.6</p> <p>(2018) 2.1.1-2.2.1-2.3.3-2.3.4-2.2.2-2.2.3-2.3.1-2.3.2-2.3.5-2.4.1-2.5.1</p> <p><i>Metacognitive information</i> (2013) 1.2</p>
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Table 8 displays the cognitive quality and knowledge type of the last two semesters (2013 and 2018) curriculum learning outcomes. The 2013 curriculum includes the cognitive qualities of 14 learning outcomes in the theme of living things and life, 7 outcomes comprehension levels (compares, explains, grasps),

6 outcomes application levels (researches and presents, displays, discusses), and 1 outcomes analysis level (discusses by relating). As the type of knowledge, 13 learning outcomes include conceptual information (animal and plant cells, organ, tissue, organism, systems, blood circulation, blood structure and functions, blood groups), and 1 learning outcome includes metacognitive information (associating technological developments with views on the structure of the cell). In the cognitive qualities of the 11 learning outcomes in the 2018 curriculum; it includes 2 outcomes knowledge levels (defines, expresses), 6 outcomes comprehension levels (explains, inferences, evaluates), 3 outcomes application levels (explains, summarises using models). All of the learning outcomes as a type of knowledge include conceptual information (support, movement, digestion, circulation, structure and organs of respiratory and excretory systems, physical and chemical digestion of food, blood circulation, blood structure and groups, blood donation). The cognitive quality and knowledge type relationship matrix of the last two semesters' curriculum learning outcomes related to the middle school level are given in Table 9.

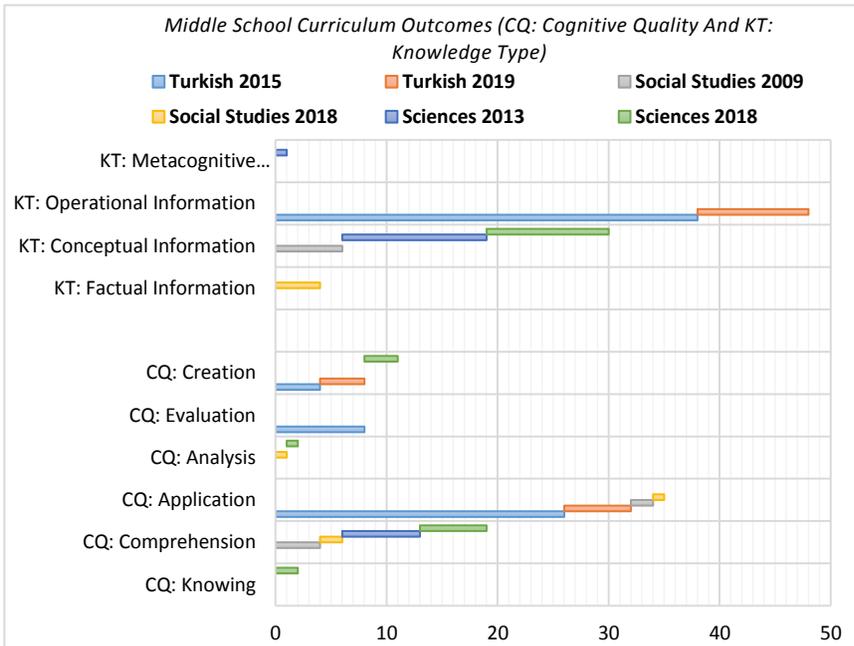
Table 9: The relationship matrix of middle school curriculum learning outcomes

Cognitive Quality \ Knowledge		“Factual”	“Conceptual”	“Operational”	Meta-cognitive	Total / %
		“Knowing”	2009-2015			
“Knowing”	2018-2019		Sciences: 2.3.3-2.3.4			2/.08
“Comprehension”	2009-2015		Social Studies: 1-2-5-6 Sciences: 1.1-1.3-2.1-4.1-4.3-4.4-4.5			11/.18
	2018-2019	Social Studies: 1.1-1.4	Sciences: 2.1.1-2.2.2-2.2.3-2.3.1-2.3.2-2.3.5			8/.32
“Application”	2009-2015		Social Studies: 3-4 Sciences: 2.2-3.1-3.2-3.3-4.2-4.6	Turkish: <i>Writing</i> ; 1-2-3-4-5-6-9-10-K1-K2 <i>Speaking</i> ; 1-5-6-7-8-9-10-11-12-K1-K2-K3-K4-K5-K6-K13		34/.59
	2018-2019	Social Studies: 1.3	Sciences: 2.2.1-2.4.1-2.5.1	Turkish: <i>Writing</i> ; 4.4 <i>Speaking</i> ; 2.1-2.2-2.3-2.4-2.5		10/.40

“Analysis”	2009-2015				Sciences: 1.2	1/02
	2018-2019	Social Studies: 1.2				1/04
“Evaluation”	2009-2015			Turkish: Writing; 8-D1-D2-D3 Speaking; D1-D2-D3-D4		8/14
	2018-2019					-
“Creation”	2009-2015			Turkish: Writing; 7 Speaking; 2-3-4		4/07
	2018-2019			Turkish: Writing; 4.1-4.2-4.3-4.5		4/16
Total/ Percentage	2009-2015		19/33	38/65	1/02	58/100
	2018-2019	4/16	11/44	10/40		25/100

In Table 9 above; when we look at the learning outcomes of the last two semesters of curriculum in different disciplines from the 6th grade at middle school level, it lays emphasis on the fact that a total of 58 learning outcomes in the 2009-2015 period decreased to 25 in the 2018-19 period, and the learning outcomes decreased by 40%. In terms of quality, when the learning outcomes of three different disciplines in the period of 2009-2015 are compared in terms of cognitive quality, the highest level of agglomeration is application (59%) and comprehension (18%), while the least at the level of analysis and knowing. When compared in terms of knowledge type, the most aggregation is in transactional (65%) and conceptual knowledge (33%) types, and at least there is no learning outcomes in metacognitive knowledge type. When the learning outcomes of three different disciplines in the 2018-2019 period are compared in terms of cognitive quality, they are mostly at the application (40%) and comprehension (32%) levels, and the least at the evaluation level. In the dimension of knowledge type, conceptual knowledge (44%) is operational knowledge (40%), while there are no learning outcomes in the metacognitive knowledge type. The examination of the learning outcomes at the middle school level in terms of cognitive qualities and knowledge type is given in Graphic 2 below

Graph 2: Cognitive quality-knowledge type of middle school curriculum learning outcomes



Graph 2 indicates the cognitive qualities of the curriculum learning outcomes based on the lessons of the last two semesters (2009-15 and 2018-19) from the middle school. In Turkish lesson, 38 learning outcomes in 2015 curriculum were determined as 10 learning outcomes in 2019; the outcomes include the level of application and creation as a cognitive quality, and procedural knowledge as a type of knowledge. In social studies lesson, 6 learning outcomes in the 2009 curriculum were determined as 4 learning outcomes in 2018; the outcomes include comprehension, application and analysis levels as cognitive qualities, factual knowledge as a type of knowledge. In science lesson, 14 learning outcomes in the 2013 curriculum were determined as 11 learning outcomes in 2018; the outcomes include concept and application level as cognitive quality, conceptual and metacognitive knowledge as a type of knowledge.

3.3 Learning Outcomes of Secondary Education Curricula

As three different disciplines from the 10th grade of secondary education; the same unit/theme learning outcomes of the lessons of Turkish Language and Literature (writing theme), geography (human systems theme) and biology (general principles of inheritance theme) are the same unit in the last two

semesters (2009-2015 and 2018-2019) were analysed comparatively in terms of cognitive quality and type of knowledge.

Table 10: Turkish language and literature 10 lesson 2015-2018 curriculum outcomes

Learning Outcomes <i>(The outcomes are direct citation from MEB 2015a, 2018g)</i>	Learning Outcomes Qualities
<p>2015- Theme of Writing</p> <p>“1. Determines the subject, purpose, target audience...text to be written”</p> <p>“2. Determines the events, thoughts and information to be used in...article”</p> <p>“3. Makes research on the subject of writing”</p> <p>“4. Limits the subject of his/her article”</p> <p>“5. Determines the main idea of his/her article”</p> <p>“6. Determines the helpful thoughts he/she will use in the article”</p> <p>“7. Makes use of ways to improve thinking in his/her writings”</p> <p>“8. Writes taking into account the characteristics of text types”</p> <p>“9. Plans the text to write”</p> <p>“10. Creates a draft text based on the writing plan”</p> <p>“11. Writes his/her feelings and thoughts using... sentence structures”</p> <p>“12. Writes paragraphs that express his/her feelings and thoughts clearly...”</p> <p>“13. Writes his/her articles by considering the relationships between...”</p> <p>“14. Uses expression types and techniques appropriate to the text”</p> <p>“15. Uses different sources in his/her articles within the framework...rules”</p> <p>“16. Improves the draft text”</p> <p>“17. The writer, taking into account the features that a good expression...”</p> <p>“18. Corrects the text in terms of content”</p> <p>“19. Corrects the text in terms of formatting”</p> <p>“20. Shares his/her text with others”</p> <p>“21. Undertakes the responsibility of the texts he/she produces and...”</p>	<p>Cognitive Quality</p> <p><i>Application level</i> (2015) 3-9-14-15-20-21</p> <p>(2018) B3-B4-B5-B6-B8-B9-B10-B11-B12-</p> <p><i>Analysis level</i> (2015) 1-2-4-5-6-7-8-13 (2018) B2-B7</p> <p><i>Creation level</i> (2015) 10-11-12-16-17- (2018) B1</p> <p><i>Evaluation level</i> (2015) 18-19</p>

2018 Theme of Writing	Information Quality
“B.1. Writes different types of texts” “B.2. Determines the subject, purpose and target audience according to the type of text he/she will write” “B.3. Makes preparations on the subject of writing” “B.4. Plans the text to write” “B.5. Writes in accordance with the structure features ...to the text type” “B.6. Writes in accordance with the language and expression characteristics specific to the text type” “B.7. Writes by paying attention to the features that a good... should have” “B.8. Uses different sentence structures and types” “B.9. Uses visual and audio elements correctly and effectively” “B.10. Reviews the text he/she has written” “B.11. Undertakes the responsibility of the texts he/she produces and...” “B.12. Shares his/her text with others”	Operational information (2015) 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21 (2018) B1-B2-B3-B4-B5-B6-B7-B8-B9-B10-B11-B12

Table 10 shows the cognitive quality and knowledge type of the last two semesters (2015 and 2018) of the Turkish Language and Literature 10 lesson from the secondary education level. The cognitive qualities of the 21 learning outcomes in the 2015 curriculum writing theme include 6 outcomes application levels (make, plan, use, utilise, share, undertake), 8 outcomes analysis levels (determine, constrain, utilise, author), 5 outcomes levels (create, author, improves), 2 outcomes evaluation levels (corrects). All of the learning outcomes as knowledge type include operational information (subject, purpose, target audience, type of the text, main and supplementary idea, event in the text, evaluation of the text and ways of developing thought). The cognitive qualities of the 12 learning outcomes in the 2019 curriculum writing theme include 9 outcomes application levels (makes, plans, writes, uses, reviews, shares), 2 outcomes analysis levels (determines, writes), 1 outcomes creation level (writes). All of the learning outcomes as knowledge type include operational information (text type, subject, purpose, target audience, structure, language and expression in the text, evaluation of the text).

Table 11: Geography 10 lesson 2014-2018 curriculum outcomes

Learning Outcomes <i>(The outcomes are direct citation from MEB 2014b, 2018f)</i>	Learning Outcomes Qualities
<p>2014- Themes of Human Systems</p> <p>“1. Makes inferences about population characteristics and the importance of the population”</p> <p>“2. Question the distribution of the world population and the factors affecting the distribution”</p> <p>“3. Makes inferences about the structure of the population by creating population pyramids”</p> <p>“4. Makes inferences about the causes and consequences of migration in the world using historical texts, documents and maps”</p> <p>“5. Analyses the spatial effects of migration through case studies”</p> <p>“6. Distinguishes economic activities according to their basic characteristics”</p> <p>“7. Associates the data on the proportional distribution of economic activity types with the development levels of countries”</p>	<p>Cognitive Quality</p> <p>Comprehension level <i>(2014)</i> 1-2-3-4-6</p> <p><i>(2018)</i> 2.1-2.2-2.4-2.8-2.10-2.11</p> <p>Analysis level <i>(2014)</i> 5-7</p> <p><i>(2018)</i> 2.3-2.7-2.12</p> <p>Evaluation level <i>(2018)</i> 2.5-2.6-2.9</p>
<p>2018- Theme of Population Movements</p> <p>“2.1. Makes inferences about population characteristics and... by using statistical data”</p> <p>“2.2. Inferences about the change of world population in the historical process by using statistical data”</p> <p>“2.3. Relates the factors affecting the distribution of the population and the distribution of the world population”</p> <p>“2.4. Makes inferences about the structure of the population based on the population pyramids”</p> <p>“2.5. Evaluates the course of historical factors in terms of population in Turkey...”</p> <p>“2.6. The distribution of population in Turkey is evaluated in terms of the effective factors in the distribution of the population”</p> <p>“2.7. Analyses the structural features of Turkey’s population from the current data...”</p> <p>“2.8. Makes inferences about the causes and consequences of migration in the world by using historical texts, documents and maps”</p> <p>“2.9. Migration in Turkey is evaluated in terms of ...and consequences”</p> <p>“2.10. Explains spatial impact of immigration from Turkey with examples”</p> <p>“2.11. Distinguishes economic activities according to their basic characteristics”</p> <p>“2.12. Inferences by relating the proportional distribution of economic activity types with the development levels of countries”</p>	<p>Information Quality</p> <p>Conceptual information <i>(2014)</i> 1-2-3-4-5-6</p> <p>Metacognitive information <i>(2014)</i> 5-7</p> <p><i>(2018)</i> 2.1-2.2-2.3-2.4-2.5-2.6-2.7-2.8-2.9-2.10-2.11-2.12</p>

Table 11 presents the cognitive quality and knowledge type of the last two semesters (2014 and 2018) curriculum learning outcomes of the Geography 10 lesson from secondary education level. The cognitive qualities of the 7 learning outcomes in the human systems theme in the 2014 curriculum includes 5 outcomes comprehension levels (attends, questions, distinguishes); 2 outcomes analysis levels (analyses, correlates). As a type of knowledge, 5 of the learning outcomes are conceptual information (population characteristics, world population distribution and influencing factors, population pyramids, migration in the world, economic activities), 2 are metacognitive information (migration and spatial effects, distribution of economic activities and the effects of countries' development). In the 2018 curriculum, the cognitive qualities of the 12 learning outcomes in the human system's theme were determined as 5 at the comprehension level (finds, explains, distinguishes), 4 at the analysis level (associates, analyses, makes inferences by associating), and 3 at the evaluation level (evaluates). As type of knowledge, all of the learning outcomes includes metacognitive knowledge (population statistical data on population characteristics, changes in the historical process of population, population distribution, population pyramids, population of Turkey, migration and population, migration effects, economic activity and development level).

Table 12: Biology 10 lesson 2013-2018 curriculum outcomes

Learning Outcomes <i>(The outcomes are direct citation from MEB 2013b, 2019e)</i>	Learning Outcomes Qualities
2013- "Theme of General Principles of Heredity"	Cognitive Quality
"1.1. Analyses the historical development of the concept, model of heredity..."	Comprehension level
"1.2. Understands the general principles of inheritance and analyses interactions between alleles"	(2013) 2.1
"1.3. Examines the role of genetic variations in explaining biological diversity"	(2018) 2.1.1-2.1.2
"2.1. Realises the effects of genetic engineering applications on human life"	Analysis level
"2.2. Analyses the impact of biotechnology applications on human life"	(2013) 1.1-1.2-1.3-2.2
"2.3 Identifies, discusses and evaluates ethical issues in biotechnology and... applications"	Evaluation level
	(2013) 2.3

<p>2018- “Theme of Heredity and Biodiversity” “2.1.1. Explains the general principles of heredity” “2.1.2. Questions the role of genetic variation in explaining biological diversity”</p>	<p>Information Quality <i>Factual information</i> (2013) 2.1-2.2-2.3</p> <p><i>Conceptual information</i> (2013) 1.1-1.2-1.3 (2018) 2.1.1</p> <p><i>Metacognitive information</i> (2018) 2.1.2</p>
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Table 12 depicts the cognitive quality and type of knowledge of the last two semesters (2013 and 2018) of the Biology 10 lesson from the secondary education level. Cognitive qualities of the 6 learning outcomes in the theme of fundamental principles of inheritance in 2013 curriculum includes 1 outcome at comprehension level (becomes aware), 4 outcomes at the analysis level (analyses, solutions, examines), and 1 outcome at the evaluation level (discusses, evaluates). As a type of knowledge, 4 of the learning outcomes include conceptual information (inheritance, models and theories of inheritance, genetic variations, biological diversity), 2 of them include factual information (genetic engineering, biotechnology). The 2018 curriculum includes 1 outcome at the comprehension level (explains), 1 outcome at the analysis level (question its role) in the cognitive qualities of 2 learning outcomes in the theme of inheritance and biodiversity. As a type of knowledge, one of the learning outcomes includes conceptual information (general principles of inheritance) and the other includes metacognitive information (genetic variations and biodiversity explanation).

Table 13: Relation matrix of secondary education curriculum learning outcomes

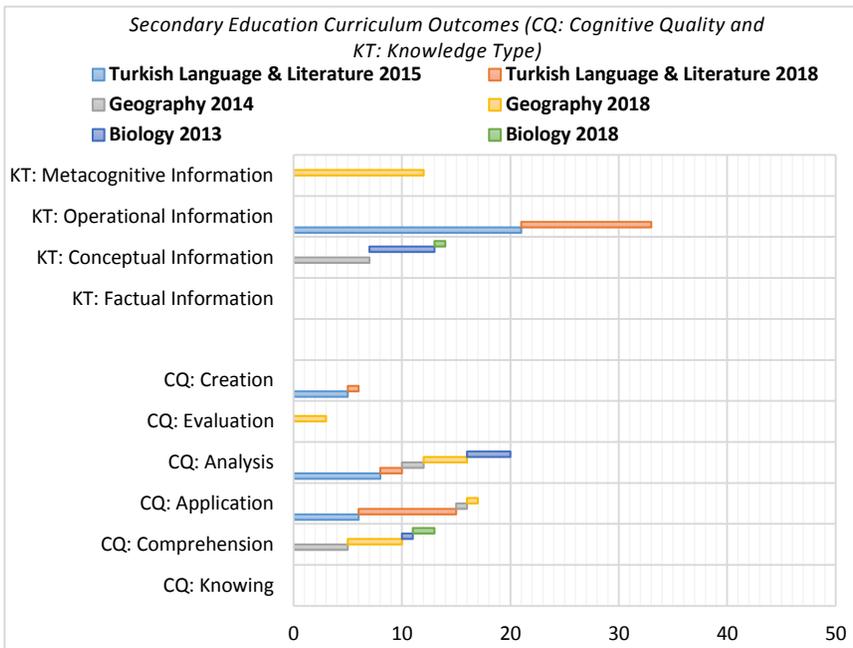
		Knowledge				
		“Factual”	“Conceptual”	“Operational”	Meta-cognitive	Total / %
“Knowing”	2009-2015					
	2018-2019					

“Comprehension”	2009-2015		Geography: 1-2-3-4-6 Biology: 2.1			6/ .18
	2018-2019		Biology: 2.1.1		Geography: 2.1-2.2-2.8- 2.10-2.11	6/ .23
“Application”	2009-2015			Turkish Lang. Lit.: 3-9-14- 15-20-21		6/ .18
	2018-2019			Turkish Lang. Lit.: B3-B4- B5-B6-B8-B9- B10-B11-B12		9/ .35
“Analysis”	2009-2015		Geography: 5-7 Biology: 1.1-1.2- 1.3-2.2	Turkish Lang. Lit.: 1-2-4-5-6- 7-8-13		14/ .41
	2018-2019			Turkish Lang. Lit.: B2-B7	Biology: 2.1.2 Geography: 2.3-2.4-2.7- 2.12	7/ .27
“Evaluation”	2009-2015		Biology: 2.3	Turkish Lang. Lit.: 18-19		3/ .09
	2018-2019				Geography: 2.5-2.6-2.9	3/ .11
“Creation”	2009-2015			Turkish Lang. Lit.: 10-11-12- 16-17		5/ .14
	2018-2019			Turkish Lang. Lit.: B1		1/ .04
Total/ Percentage	2009-2015		13/ .38	21/.62		34 / .100
	2018-2019		1/ .04	12/ .46	13/ .50	26/ .100

Table 13 shows that the last two semesters of curriculum learning outcomes in disciplines different from the secondary education level 10th grade decreased from 34 learning outcomes in 2009-2015 to 26 learning outcomes in 2018-19 period, and the learning outcomes decreased by 24%. When the learning outcomes of three different disciplines in the 2009-2015 period are compared

in terms of cognitive quality, it focuses the most on analysis (41%) level, and least on assessment (09%) and cognition levels. The agglomeration in the dimension of knowledge type is mostly at the operational (62%) and conceptual knowledge (38%) levels, and there are no learning outcomes in the factual and metacognitive knowledge type. When the learning outcomes of three different disciplines in the 2018-2019 period are compared in terms of cognitive quality, they are mostly at the level of application (35%) and analysis (27%), while the least at the level of creation (04%). In terms of knowledge type, while the most congestion is in metacognitive (50%) and operational (46%) knowledge types, there is no outcome in factual knowledge type. The examination of the learning outcomes at the secondary education level in terms of cognitive qualities and type of knowledge is examined in Graph 3 below.

Graph 3: Distribution of curriculum outcomes in terms of cognitive qualities-knowledge type



Graph 3 examines the curriculum learning outcomes based on the lessons of the last two semesters (2009-15 and 2018-19) in secondary education. In the Turkish Language and Literature lesson, 21 learning outcomes in the 2015 curriculum were determined as 12 outcomes in 2018; the outcomes include the application, analysis and creation level as cognitive qualities, and procedural knowledge as

a type of knowledge. In geography lesson, 7 learning outcomes in the 2014 curriculum were determined as 12 learning outcomes in 2018; the outcomes include comprehension, analysis and evaluation levels as cognitive qualities, factual and metacognitive knowledge as a type of knowledge. In biology lesson, 6 learning outcomes in the 2013 curriculum were determined as 2 learning outcomes in 2018; the outcomes include cognitive comprehension and analysis level, conceptual and metacognitive knowledge as a type of knowledge.

Given the research findings respecting Turkey's three different education levels, while curriculum learning outcomes of the selected total of 9 lessons at the same grade level of the last two semesters in the fields of social sciences, linguistics, and science are composed of 164 learning outcomes in 2009-15 semester (including 72 in primary school, 58 in middle, and 34 in high school), in the semester of 2018-19 the learning outcomes regarding the aforementioned grade levels and semesters consists of 81 learning outcomes in total (including 30 in primary school, 25 in middle school, and 26 in high school), meaning that there was a 49% decrease in learning outcomes. It is seen that the learning outcomes are distributed more evenly to three levels in the last period. In the qualitative dimension, while the learning outcomes at three levels focus on the cognitive comprehension and application levels (partially analysis, evaluation level in secondary education); it focuses on factual, conceptual and operational (partially metacognitive knowledge in secondary education) knowledge as a type of knowledge. In this research, it is of crucial importance to address the epistemological value of the results regarding the cognitive quality and knowledge structure of learning outcomes in terms of the relevant approaches in the dimension of science paradigms, philosophy and sociology of knowledge and the nature of learning.

4. Discussion

Considering epistemological nature of curriculum learning outcomes in this research from different grade levels in Turkey, it is found out that the learning outcomes of the primary school (Turkish 3, Life Science 3, Mathematics 3) are at the level of knowing, comprehending and applying 96% in the period of 2009-15 and 83% in the period of 2018-19 as a cognitive quality. As a type of knowledge, all of the learning outcomes in both periods include factual, conceptual and operational knowledge. The learning outcomes of the middle school (Turkish

6, Social Studies 6, Science 6) are at the level of knowing, comprehension and application 77% in the period of 2009-15 and 80% in the period of 2018-19 as a cognitive quality. As type of knowledge, 98% of the learning outcomes in both periods include conceptual and operational information. The learning outcomes of the secondary education level (Turkish Language and Literature 10, Geography 10, Biology 10) are at the level of comprehension and application in the period of 2009-15 and 64% at the level of analysis, evaluation and creation in terms of cognitive qualities. In the period of 2018-19, 58% are at the level of comprehension and application and 42% of them are at the level of analysis, evaluation and creation. As type of knowledge, all of the learning outcomes in the 2009-15 period include conceptual and operational knowledge type, while in 2018-19 period 50% includes conceptual and operational knowledge, and 50% includes metacognitive knowledge. The epistemological nature of the cognitive qualities and types of knowledge included in the outcomes; knowledge production methodology in terms of science paradigms; the nature, source and accuracy criterion of information in terms of philosophy of knowledge; The socio-political construction of knowledge, socio-cultural differences, humanity problems and its inclusiveness in terms of sociology of knowledge; In terms of the nature of learning, the scope of knowledge structures, cognitive qualities and social skills required by contemporary world needs should be discussed.

From science paradigms' perspective, it is necessary here to clarify the content of the curriculum outcomes grounded in the discourse on the science paradigms put forward by Fayerabend (1991), Popper (2010), Demir (2012), Hekman (2012), Kuhn (2014), Arkkonaç (2015), Bal (2015), and Lakatos and Musgrave (2017). In respect to logical positivism, when the type of knowledge (factual, conceptual, operational knowledge) and cognitive qualities (knowing, comprehension, application level) in the three-stage learning outcomes is taken into account through the concept of verifiability, the learning outcomes are de facto and include transferring knowledge structures and cognitive qualities for this transfer of general and singular accuracy with a focus on disciplinary field terminology. Taking into account Kuhn's conceptualisation based on the arguments of "particular paradigms" with common values, beliefs, techniques, laws and models of certain scientific communities, it allows a deeper insight into the type of knowledge (factual, conceptual, operational knowledge) and cognitive qualities (knowing, comprehension, application level) including conceptualisations based on specific theories (behavioural and cognitive

theory, curriculum theory, disciplinary domain knowledge model, etc.). This conceptualisation based on certain paradigms highlights the function of the determined knowledge structures and cognitive qualities as a means of politico-ideological hegemony. Considering Popper's methodological falsification theory, it is important to note that the type of information and cognitive qualities in the learning outcomes are not comprised of meta-cognitive qualities and knowledge structures having "falsifiability"-oriented inquiry and research. Instead, it appears to be limited to the transfer of certain types of knowledge (factual, conceptual, operational knowledge) and cognitive qualities (knowing, comprehension, application level) whose accuracy and boundaries are defined. The type of knowledge (factual, conceptual, procedural knowledge) and cognitive qualities (knowing, comprehension, application level) contained in the learning outcomes can be read through Lakatos' alternative "equidistant values and perspectives" and Fayerabend's "theoretical and methodological pluralism". In this dimension, it is seen that the achievements include a discipline-oriented singular truth and method-based knowledge and value perspective, and these approaches do not contain high-level cognitive qualities and knowledge structures that can coincide with the pluralist perspectives that see different information and value systems with equivalent accuracy. In this context, the type of knowledge and cognitive qualities included in the learning outcomes coincide with the "verifiability" of logical positivism and the "dominance of paradigms" of Kuhn.

In respect to philosophy of knowledge, when the types of knowledge and cognitive qualities in learning outcomes are taken into account by the philosophy of knowledge approaches of Honer and Hunt (1996), Arslan (2007), Çüçen (2009), Cevizci (2010), and Ülken (2016), it is figured out that learning outcomes at three different education levels in the subject and object relationship bring to the fore epistemological nature by putting emphasis on both cognitive qualities relating to subject of knowledge covering the levels of knowledge, comprehension and application, and the types of knowledge involving factual, conceptual and operational knowledge about the object of knowledge. On the other hand, it should be noted that that the learning outcomes do not include the epistemological nature of meta-cognitive qualities including individual construction, intuition, criticism and scepticism, and "recognition knowledge" for metacognitive knowledge structures. In this regard, the cognitive qualities and knowledge structures in the learning outcomes at three different education

levels are limited to the knowledge structures of the discipline as the object of knowledge explaining the knowledge through “information about”; and it includes the conceptions of reciprocity, openness, compromise, consensual accuracy with justification based on externality. In this sense, it is understood that the cognitive qualities and types of knowledge in the learning outcomes of the curriculum does not enable the subject to employ “knowledge of recognition” as a means of reconstructing, experiencing and intellectual development. As well, it is to be noted that without basing these issues on internality, they are less likely to include constructivist, pragmatist, and sceptical conceptions of truth.

In regard to the sociology of knowledge, considering the type of knowledge (factual, conceptual, operational knowledge) and cognitive qualities (knowing, comprehension, application level) of the learning outcomes, it is of great necessity to debate their inclusiveness in terms of socio-cultural differences, historical-global context, class and cultural capital, pluralist cultural structure and humanity problems as the basic requirements of the contemporary world. It may be concluded that cognitive qualities and types of knowledge within the studied learning outcomes are insufficient to meet the contemporary world requirements of OECD including such competencies as knowledge, skills, values and attitudes about discovering world problems, openness to understanding different perspectives, interaction of ideas and taking action (OECD, 2018b). Similarly, cognitive qualities and types of knowledge of the learning outcomes also fail to meet the competencies of UNESCO (cited in TEDMEM, 2015) including learning for knowledge, learning to do, learning to exist and learning to live together. Meanwhile, they are also ineffective in gaining Perkins’s (2016) competencies of creating, organising, spreading, transferring, and acting on knowledge. In addition, they have no impact on Bauman’s (2020) cognitive frameworks and cognitive competencies that reorganise and eliminate dominant cognitive frameworks. From a socio-political viewpoint over cognitive qualities and knowledge structures in the learning outcomes, Bourdieu and Passeron (2015) and Bourdieu (2013, 2014) assert that presentation of knowledge structures in education as basic and general-correct enables symbolic violence and pedagogical authority. Pedagogical acts involving symbolic violence enable the transfer of cultural capital and codes dominant to all social classes and the effect of transforming into a hegemony on the individual by enabling the production of a certain class culture. Accordingly, the achievements enabling

the transfer of certain socio-political knowledge and values should be assessed in the light of Althusserl's (2010) approach, which lays emphasis on education's transformation into an ideological device of the state. Accordingly, Morin (2003) states that teaching modern education by separating the information from each other eliminates the interdisciplinary interaction and context, and this results in the mechanical intelligence that sees the complexity of the world in one-dimensional pieces. From Morin' point of view, it should be underlined that the achievements have the effect of limiting the unity of reality and the multi-dimensionality of cognitive abilities.

With regards to the nature of learning, the scope of curriculum learning outcomes should be discussed according to Vygotsky, Dewey, Piaget, and Bruner's learning approaches that learning is in line with a process built by the individual experience (process to the construction of cognitive structures), and based on contextual conditions, and individual needs instead of discussing based on predetermined processes. In this context, Piaget states that cognition is not a static copy of reality, but involves dynamically reproducing reality by transforming it, while knowing reality involves creating, rearranging and transforming into unknown reality (Evans, 1999; Fosnot and Perry, 2007; Glasersfeld, 2007; Lektorski, 2016; Piaget, 2007). Vygotsky, on the other hand, states that the mental schema, concepts, methods of thinking and cognitive structures of individuals are transformed and reconstructed through social interaction experiences while learning, social environment, cultural objects, language and social institutions are effective on the transformation of cognitive structures and the development of higher-level cognitive functions (Fosnot and Perry, 2007; Schunk, 2014). It must be stressed that the type of knowledge (factual, conceptual, procedural knowledge) and cognitive qualities (knowing, comprehension, application level) included in the learning outcomes based on these finds do not include multivariate cognitive structures constructing different contextual conditions, social and situational realities and problems together, and experience of metacognitive skills and competencies; however, they include the knowledge structure, understanding and application of the disciplinary field, definition, comprehension and application based on the cognitive structures required by the discipline. In this context, it needs to be pointed out that the cognitive qualities and types of knowledge included in the learning outcomes do not coincide with the nature of learning in the dimension of cognitive and social constructivism.

5. Result

As a result, as different education levels in Turkey: it has been determined that the learning outcomes of the curriculum examined from the fields of social sciences, linguistics and natural sciences from primary school (Turkish 3, Life Science 3, Mathematics 3), middle school (Turkish 6, Social Studies 6, Science 6) and secondary education (Turkish Language and Literature 10, Geography 10, Biology 10) include knowledge, comprehension and application levels as cognitive qualities and factual, conceptual and operational knowledge types as knowledge type. These results show that high-level cognitive skills and competencies, which include using and experiencing different factual realities, value systems, universal problems and different knowledge approaches together, and their epistemological coverage for metacognitive knowledge of curriculum learning outcomes is very limited. These results are consistent with the results of İşeri (2019) that Turkey curriculum learning outcomes concentrate on PISA lower level of competence and are very limited in the upper level of competence. The justification for this situation is that the learning outcomes are related to the design of traditional education, which stipulates the perception, comprehension and use of certain knowledge and cognitive structures determined in the face of certain events, phenomena, situations and problems, in the determined ways; and to the disciplinary field that restricts the individual to the comprehension and application of pre-designed one-dimensional, given pieces of knowledge by removing the individual from being an active creator of knowledge. Based on these results; it can be stated that its epistemological inclusiveness is limited to cognitive qualities that contemporary world needs focus on, different contextual reality and value systems, social problems and sensitivities and learning understandings (thinking to think, learning to learn, etc.). As a result, the learning outcomes examined, it involves the transfer of certain externally guided knowledge and cognitive qualities that determine what an individual will think, do or know, despite the unlimited potential of thinking, producing and creating.

Ethical Statement Information of the Article

Conflict of Interest Statement: “Curricula learning outcomes and epistemological scope in Turkey” entitled in the work, there is no conflict of interest between the factual situation, contents and the relevant institution and the author.

Author Contributions: “Curricula learning outcomes and epistemological scope in Turkey” entitled of work all forms of process and content directly from the content of the research has been prepared by the author.

Ethics Committee Certificate Of Approval: “Curricula learning outcomes and epistemological scope in Turkey” entitled of work in writing have been complied with ethics and citation rules, no falsification has been made on the collected data.”

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CHAPTER XI

META-SYNTHETIC REVIEW OF STUDIES ON EFL TEACHERS' TPACK IN TURKEY

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1. Introduction

The digital age of the 21st century is defined as an influential era in the field of education. One of the principal stakeholders of education, teacher educators, in an effort to enhance educational quality, are deeply engaged in finding learning trajectories that help teachers integrate technology into their acts of teaching. Reflections of technological progress on education lay emphasis on revisiting how curricula activities for per-service teachers and professional development for in-service teachers could be reshaped in order to infuse technology into teaching process. However, integration of technology into teaching is a challenge teacher educators and teachers attend to in ascertaining viable ways for helping students learn with technology. Albeit progress in educational technology and teacher development, often times teachers are unable to exhibit adequate and proper experiences regarding integration of technology into their teaching, which is ascribed to lack of skills or competencies respecting the incorporation of knowledge of technology and pedagogy into teaching (Hew & Brush, 2007).

Conception of good teaching with technology is basically based on the interplay among and between content, pedagogy, and technology

(Koehler et al., 2013), referring to an amalgam of which serves as the core of Technology, Pedagogy, and Content Knowledge (TPACK) framework (Koehler et al., 2013). When Figure 1 is examined, it is ascertained that TPACK is a framework that identifies a set of knowledge teachers need to have for effective teaching with technology. The framework lays stress on the core three knowledge bases as technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK), also accentuating the emergence of four knowledge bases as Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), Pedagogical Content Knowledge (PCK), and Technological Pedagogical and Content Knowledge (TPACK). Defining each knowledge base simply enables teacher educators and trainers to portray status quo and professional needs of teachers for further teacher education and training programmes. Technology Knowledge (TK) means having the knowledge of operating computer software and hardware and employment of a range of software like word processors, spreadsheet programme, presentation slides, and tools for communication. Moreover, teachers are supposed to have skills to operate aforementioned tools and technologies, and use them effectively in the process of teaching (Chai et al., 2010; Mishra & Koehler, 2006). Content Knowledge (CK) relates to knowledge of teachers' subject area where fundamental facts of the content knowledge, concepts, theories, and protocols have to be explicated and clarified by teachers. (Chai et al., 2010; Mishra & Koehler, 2006). Pedagogical Knowledge (PK) pertains to use of strategies, methods, or tactics teachers utilise in organising, implementing, managing, and assessing educational activities (Koehler & Mishra, 2008). As an initial coalescence, Technological Pedagogical Knowledge (TPK) refers to a connection between technologies and pedagogical practices. The second one is Pedagogical Content Knowledge (PCK), which is directly related to pedagogical practices and learning objectives. The third one is Technological Content Knowledge (TCK) that refers to a relation between technologies and learning objectives. As an ultimate one, TPACK is regarded as a dynamic conceptual framework that may be of great benefit to teacher educators and trainers in designing teacher education and training programmes to facilitate and enhance pre-service and in-service teachers' skills and competencies regarding use of technology in classroom settings (Graham et al., 2009; Niess, 2011).

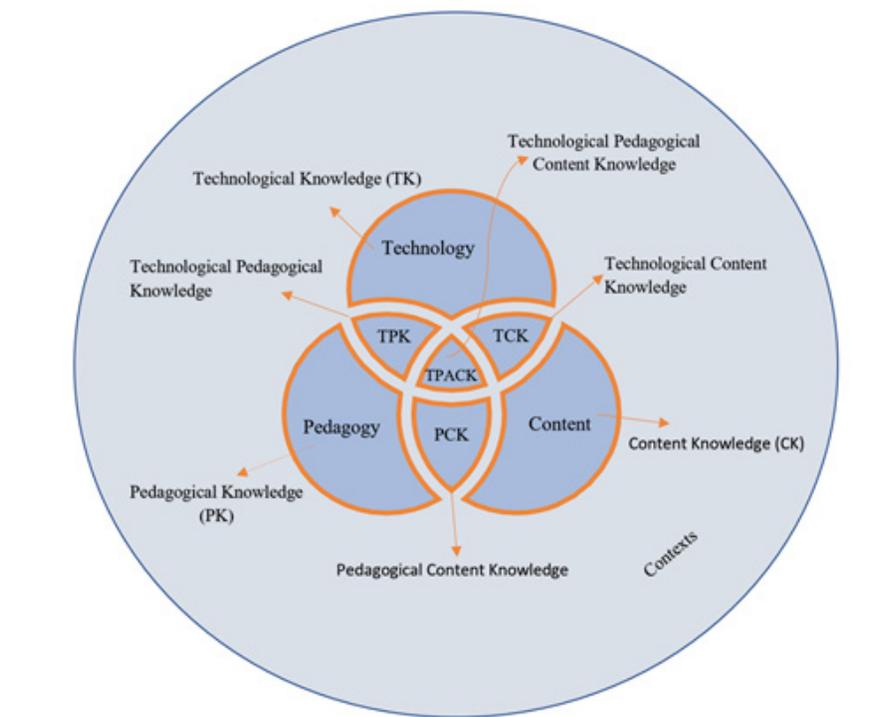


Figure 1: TPACK framework with its knowledge components surrounded by contexts

2. Review of Literature

2.1 *The Conceptual Framework*

Literature review as to employment of TPACK in education reveals that there is a plethora of studies conducted by researchers and teacher educators. For instance, some researchers use TPACK as a self-assessment or self-reporting instrument to measure teachers' TPACK efficacy (Jen et al., 2016; Koh & Divaharan, 2013; Mouza et al., 2014; Schmidt et al., 2009; Tschannen-Moran & Hoy 2001). A body of research has made an attempt to investigate artefacts designed by teachers (Harris et al., 2010; Chai et al., 2013) and explore teachers' performances through TPACK-based educational technology courses and activities (Graham et al., 2012; Jang & Tsai, 2012; Kafyulilo et al., 2015; Kramarski & Michalsky, 2010; Tokmak et al., 2013). Additionally, quite a few instruments are designed for measuring TPACK in specific areas such as science teachers (Bilici et al., 2013), geography teachers (Su et al., 2017), mathematics teachers (Bowers & Stephens, 2011), and secondary geometry teachers (McBroom et al., 2016).

In a recent qualitative case study, Ouyang and Scharber (2018) examined one experienced faculty's practice within a graduate-level online course in an attempt to adapt the original TPACK constructs for its application within online higher education, with a conclusion that TPACK framework can be utilised as an analytical tool by researchers to question online teaching practices of faculty. As well, the adapted TPACK descriptions and evaluation criteria can be employed to better assess TPACK and support faculty's online pedagogy development in higher education. Similarly, Bull (2013) conducted a case study using the Internet Technological, Pedagogical, and Content Knowledge (iTPACK) scale, which is designed for online, e-learning, and mobile learning environments (Hofer & Harris, 2010; Koehler & Mishra, 2005; Peng et al., 2009) to assist teachers, instructors, and professors with their teaching in an electronic learning environment. It is clear from the findings of Bull's study that use of text messaging as an instructional tool reinforces a pedagogically rich asynchronous environment. Further, students express their desire for more teachers to integrate text messaging in their courses, and they verbalise that text messaging is an effective way to help students recall quizzes, labs, and other related mathematics assignments.

Moreover, De Groot et al. (2015) carried out a study with two cohorts of graduate and undergraduate students based on an iterative design-based approach to investigate use of iPads for authentic teaching tasks. The study results highlight the importance of immediacy and erosion of classroom isolation regarding communication. In addition to its use in developing a TPACK scale/survey, TPACK also functions as a framework to allow researchers, teacher educators, and trainers to design face-to-face and online courses. To illustrate, Dunston et al. (2016) investigated how a redesign of courses in a variety of modes (i.e. face-to-face, online, or hybrid) is possible in the light of TPACK framework in graduate courses at tertiary level, addressing four fundamental components of design, delivery, assessment, and roles of faculty and students. The results of this study underscore that faculty redesigning courses need to provide students with clear and detailed guidelines about syllabus, assignments, and their role/responsibility in the classroom, adding the fact that in designing online courses, faculty should work collaboratively with other faculty and need to receive training on how to align assignments with assessment choices.

Similarly, Niess and Gillow-Wiles (2018) conducted qualitative design-based research in order to specify instructional practices for teacher professional

development that supports an online community of learners in reconstructing their TPACK for teaching mathematics. To this end, the researchers intend to identify instructional practices that help in-service teachers inquire and reflect their knowledge-of-practice conceptions while trying to integrate multiple technologies as learning tools. The findings of the study underline that when designing programmes especially for teachers' TPACK development, empirically supported learning trajectories are of great importance, since such learning trajectory provides identification and development of an explanatory framework that is useful to integrate descriptive tasks into a purposefully designed instructional approach.

In addition to this, Niess (2018) conducted a design-based research with graduate students based on social metacognitive constructivist framework with a view to pinpointing a 21st century online TPACK learning trajectory in online MS degree programme in the field of science and mathematics education. The purpose of this learning trajectory is to have participants collaborate while questioning, exploring, investigating, and reflecting on their own thinking and their students' thinking and learning in that field by using appropriate technologies as learning tools. The outcomes of the study accentuate that design of multiple courses reveals enhancement in teachers' TPACK for integrating technologies into their teaching acts. Instructional strategies comprised of engagement, collaborative/cooperative activities, and peer reviews are reported to be effective in creating interaction, resulting in higher levels of learning and enhancement of the participants' knowledge development.

In essence, teacher education of pre-service and professional development of in-service teachers are of crucial importance to implementing quality technology in the field of teaching English as foreign language (EFL) like in all academic domains. In the field of EFL, the literature reveals that researchers have a tendency to use TPACK as a self-reporting instrument to evaluate perceptions, self-efficacy, competency, and skills of teachers. For example, Tseng (2014) evaluated pre-service EFL teachers' perceptions through a validated TPACK instrument in Taiwan. The results of the study indicate that pre-service EFL teachers are more competent in three core knowledge (TK, CK, PK) than in other knowledge bases.

In the same vein, Kwangsawad (2016) investigated pre-service Thai teachers TPACK through self-report, lesson plan assessment, and classroom observations. The results reveal that pre-service Thai teachers have high scores in all TPACK domains. Lailiyah and Cahyono (2017) analysed Indonesian EFL

teachers' self-efficacy toward their technology integration and use of technology in teaching via a questionnaire and interview protocols. The results demonstrate that there is a relationship between self-efficacy of EFL teachers and their use of technology in the context of teaching EFL. Similarly, Wu and Wang (2015) explored in-service EFL teachers' TPACK in Taiwan and their further professional development needs through a questionnaire, interviews, and observations. The findings indicate that EFL teachers are in need of more technology knowledge to develop TPACK. In the same vein, Rahimi and Pourshahbaz (2016) undertook research as to Iranian EFL teachers' TPACK using a TPACK questionnaire, concluding that Iranian EFL teachers generally have high levels of TPACK.

Developed and validated by Schmidt et al. (2009), the TPACK survey is a commonly used instrument composed of seven distinct components as TK, CK, PK, TCK, PCK, TPK, and TPACK. There are also some studies that focus on developing TPACK instruments in the field of EFL. For example, in a study conducted to design a questionnaire by investigating EFL students' perceptions of their teachers' TPACK, Tseng (2014) tested the TPACK prototypical model with seven components, and the results demonstrate that EFL teachers' TPACK consist of five factors, three of which are found to be TK, TPK, and PCK and two of which are the combination of PK and CK; and TCK and TPACK respectively. In a similar way, Hsu (2016) conducted an exploratory factor analysis (EFA) of a TPACK-EFL instrument to investigate the psychometric property of measure of EFL teachers' TPACK. Results reveal that the constructs meet the requirements and the items have convergent validity.

In a study investigating Indonesian EFL teachers' TPACK-oriented teaching practice course, Cahyono et al. (2016) designed a 16-session course where the participants are informed about TPACK, are given tasks to make instructional designs in line with TPACK framework, and are asked to perform peer teaching using instructional designs based on TPACK framework. The findings set forth that the participants appreciate the value of TPACK-oriented course by developing successful instructional designs and conducting teaching practices within the scope of TPACK framework. In a study performed with mixed methods design, Liu and Kleinssaser (2015) examined EFL teachers perceived CALL knowledge and competencies in a year-long technology-enriched PDP. The findings indicate that there is an enhancement of participants' TPACK, and their self-efficacy of using computer technology is promoted. In a similar vein, Ansyari (2012) examined a professional development programme at tertiary level in India in order to explore the

effect of that programme on EFL instructors' TPACK development through a TPACK survey, a TAC survey, an assessment rubric, interviews, and logbooks. The findings emphasise that the participants have positive experiences about professional development programmes. However, the issues of a limited time, technology exploration, and students' active engagement are regarded as the weaknesses of the professional development programme.

Technological advancements also pave the way for creating a new learning environment where mobile devices such as tablets and mobile phones with iOS, Android, or Windows operating systems are used to integrate technology into education. In a recent study, Sun et al. (2017) conducted empirical research with 500 EFL teachers using Android system-based pads in 220 elementary schools for one year in order to identify the contributors to improve mobile-based TPACK competency of EFL teachers. The results show that mobile-based self-efficacy and technological acceptance have indirect effects on TPACK through the knowledge base TK and TPK.

In addition, teachers with younger and higher education background perform better on TPACK. Teacher education of pre-service EFL teachers and professional development of in-service EFL teachers are a challenge for teacher educators and trainers to provide teachers with authentic learning environments in Turkey. One way of leveraging authentic learning environment is possible with the help of technological tools and resources to better equip pre-service and in-service EFL teachers in Turkey, which is supposed to make TPACK a major component of Turkish pre- and in-service EFL teachers' teacher education and professional development. The researcher is thus seeking to describe status quo in the studies carried out with EFL teachers in Turkey and reveal tendency of studies in the field of EFL in Turkey, which will possibly lead educators and trainers in the field to step in reconstructing TPACK competencies of pre- and in-service EFL teachers.

In this sense, the researcher set out to examine TPACK studies with respect to some variables such as publication years, aims of studies, sample groups, data collection tools, practices/applications, results, and recommendations. Therefore, the following research questions are sought:

1. What is the distribution of studies by year in the reviewed studies?
2. Which aims are targeted in the reviewed studies?
3. Which sample groups are chosen in the reviewed studies?

4. Which research methods are employed in the reviewed studies?
5. Which data collection tools are employed in the reviewed studies?
6. What kind of teaching practices/applications exist in the reviewed studies?
7. What results are obtained in the reviewed studies?
8. What recommendations are made in the reviewed studies?

3. Method

This study was designed as a qualitative meta-synthesis of studies respecting EFL teachers' TPACK. Developed as a methodology to summarise research data from qualitative studies, meta-synthesis centres mainly on the obtained findings of existing studies (Creswell, 2012) by going beyond the traditional literature review in order for researchers to develop new knowledge depending on existing qualitative research data and build a fuller understanding of a phenomenon (Aspfors & Fransson, 2015). Since meta-synthesis fundamentally aims to interpret and compare results and outcomes of a study (Çalık & Sözbilir, 2014), it is of great necessity to assure the integrity of the interpreted findings of multiple studies by collecting, summarising, and integrating into common themes and codes for overall analysis with a view to providing real and clear insights into research data (Beck, 2003; Chenail, 2009). In this regard, research data of the reviewed studies in the current meta-synthesis was interpreted and synthesised with a critical point of view in order to form themes or codes concerning TPACK studies and reveal tendency of studies in the field of teaching EFL in Turkey.

3.1 Data Collection

To find answers for the research questions, the search was performed on TÜBİTAK ULAKBİM DergiPark, Turkish National Thesis Center, EBSCOhost-ERIC, SPRINGER databases. In order to obtain comprehensive search results, the keywords for each search were “technological pedagogical content knowledge,” “TPCK” “technological pedagogical and content knowledge,” and “TPACK.” The search was limited to studies including articles, MA and PhD theses published in Turkey between 2010 and 2020 in order to cover as many studies as possible. Each search was repeated on each database to check possible selection bias, and then a comparison of the obtained studies was made. Following the process of removing duplicates, this meta-synthesis research was comprised of 24 studies, 14 of which were articles, 9 of which were MA theses, and one was a PhD thesis.

3.2 Data Evaluation and Analysis

Firstly, the abstracts of 24 studies were read and reviewed by the researcher. Then, related parts of each study were read in detail, and obtained data was computerised. Afterwards, data was rechecked and irrelevant parts were removed. Each study was examined one by one in accord with each research question, and codes were appointed for each theme. Finally, each of the reviewed studies was coded as A1, A2, ..., A24, and these codes were used in the meta-synthesis. Coding process was carried out by the researcher. In order to prevent any mistakes during the coding process, a researcher having considerable expertise in conducting content analysis was consulted in order to code each study separately. As a result of separate coding process, a high agreement was reached by the researchers, with .96 inter-coder reliability.

In the current study, data from the reviewed studies was presented for each theme as tables or graphs. The purpose of presenting data as such was to visualise the findings and provide clear insights into the important points in the reviewed studies. Following the statistical presentation of collected data through frequencies in tables and graphs, a general explanation was made under the tables and graphs. Additionally, the similarities and differences recognised were analysed in accordance with their degree of importance in detail using content analysis.

4. Findings

4.1 Distribution of the Reviewed Studies by Year

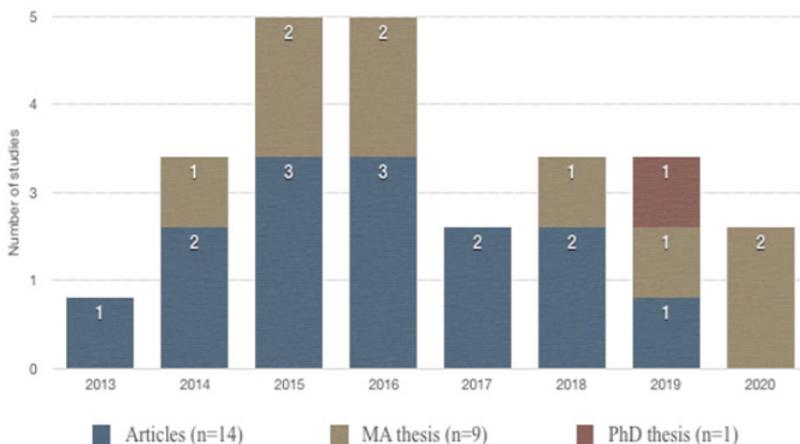


Figure 2: Distribution of studies by year

Figure 2 shows that given the distribution of the publications concerning TPACK in the field of teaching EFL in Turkey, the emergence of studies starts with an article published in 2013. Following the year of 2013, there are articles, MA theses, and a PhD thesis published on TPACK in the field. Considering the types of the publications, the number of articles is higher than that of both MA and PhD theses. Similarly, when the number of MA theses is compared to that of PhD thesis, there is the paucity of publications in terms of PhD thesis in the field of EFL in Turkey.

4.2 *Aims of the reviewed studies*

Table 1: Data regarding the aims of the reviewed studies

Aims	Studies	f
Identification of TPACK competency	A1, A2, A5, A8, A9, A11, A14, A20	8
Determination of the relation between TPACK and some variables (beliefs/attitudes/gender/academic success/classroom management/student acceptance)	A12, A16, A17, A18, A20, A21, A22, A23	8
Investigation of intervention on TPACK development	A4, A6, A7, A10, A13, A24	6
Development of scale/survey for TPACK	A3	1
Examination of TPACK indicators	A15	1

As is shown in Table 1, the reviewed studies underline the fact that a considerable number of studies are performed with intent to identify and reveal TPACK levels of EFL teachers and determine the relations between TPACK and some variables such as beliefs, gender, and academic success. Some studies on TPACK development of EFL teachers aim to investigate the effect of intervention. One of the reviewed studies focuses on adaptation of TPACK into TPACK-EFL survey that addresses subject-specific pedagogy and technologies. There is one study that intends to identify indicators of EFL teachers' TPACK.

4.3 Sample Group of the Reviewed Studies

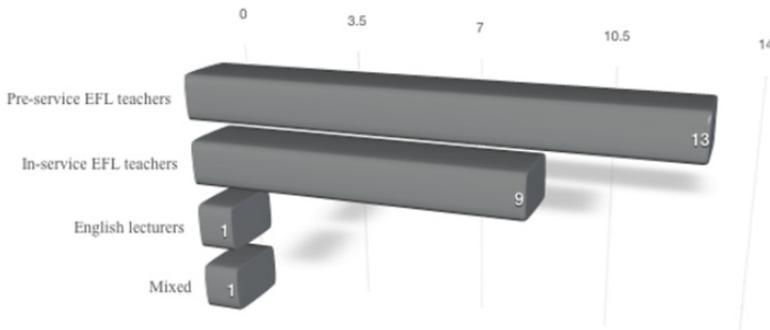


Figure 3: Sampling level

When Figure 3 is analysed, it is ascertained that thirteen of the reviewed studies are carried out with pre-service EFL teachers, whereas nine of the studies are conducted with in-service EFL teachers. One study is performed with English lecturers at tertiary level. Also, there is one study whose sample group is composed of pre-service, in-service, and certificate programme EFL teachers.

4.4 Research Designs in the Reviewed Studies

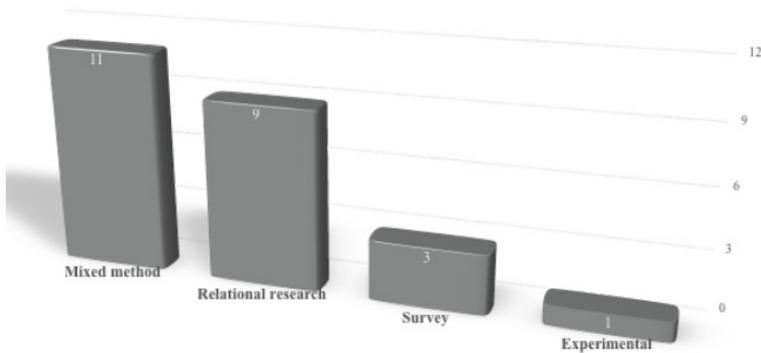


Figure 4: Research designs

According to Figure 4, a considerable number of the reviewed studies employ mixed methods research design. In almost all of the studies conducted with mixed methods research design, data is collected via more than two data collection instruments. The only study with experimental research paradigm is an article that examines the effects of creating digital stories at tertiary level (A4). Two of the case studies are MA theses (A15, A24). One of the case studies analyses five

in-service EFL teachers' TPACK practices through video recordings (A15). The other one explores in-service EFL teachers' teaching perceptions and practices in an online master course (A24). Three of the reviewed studies including two articles (A5, A9) and an MA thesis (A23) reveal that data for those studies is collected through a TPACK survey/questionnaire. Considering relational research design, there is only one article that examines the relationship between in-service EFL teachers' TPACK, skills, and attitudes toward technology (A12). In the remainder studies which are composed of mainly MA theses and a PhD thesis, the relationships between the participants' TPACK and some variables such as gender, beliefs, experiences and attitudes are investigated.

4.5 Data Collection Instruments in the Reviewed Studies

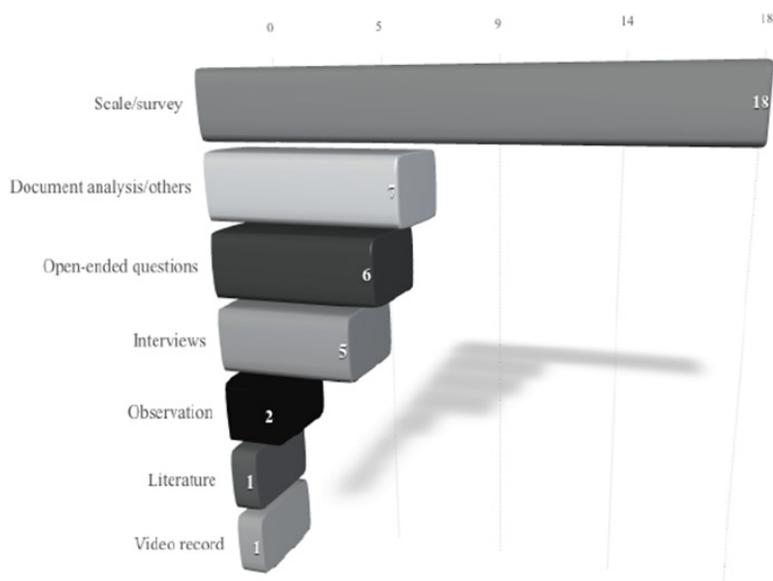


Figure 5: Data collection tools

Figure 5 reveals that in eighteen of the reviewed studies, scale/survey is employed as an instrument for data collection. Since scale and survey are interchangeably used in lieu of each other by researchers, the category is specified under the heading of scale/survey in the current study. As a commonly used instrument in the reviewed studies, scale/survey generally serves as a function to measure self-perceived performance, competency, and self-confidence of EFL teachers. Though scale/survey is used as self-assessment or self-reporting instrument to describe status quo in many of the reviewed studies, in some studies it is preferred

to evaluate EFL teachers' TPACK development subsequent to intervention process (A4, A7, A10, A13, A24). In seven studies, the second widely utilised data collection instrument covers the use of document analysis, journal entries, peer reflective discussion forms, lesson plans, and artefacts (A3, A6, A7, A11, A13, A15, A24). In six of the reviewed studies, a section of open-ended questions is added to the end of TPACK scale/survey to acquire comprehensive insights into EFL teachers' TPACK development, competency, and self-efficacy (A1, A2, A4, A11, A14, A22).

In addition, in five of the reviewed studies, interviews are conducted with EFL teachers to get a detailed understanding of how they integrate TPACK into their acts of teaching (A7, A8, A24) and identify indicators of EFL teachers' TPACK in classroom settings through a semi-structured interview form (A15). In only one study, expert interview is performed with the purpose of developing a TPACK-EFL scale (A3). Observation instruments used in two of the reviewed studies aim to display the ways how EFL teachers integrate technology into their teaching practice through artefacts such as digital stories (A4, A13). In one study, literature review is preferred as a data collection instrument in the phase of developing a TPACK scale (A3). Finally, in another study video record is used for data collection in an effort to reveal indicators of EFL teachers' TPACK (A15).

4.6 *TPACK-related Practices/applications in the Reviewed Studies*

Table 2: TPACK-related practices/applications in the reviewed studies

Practice/Application types	Studies	f
Courses designed for TPACK	A4, A7, A10, A13, A24	5
TPACK workshop and training	A6	1
Micro teaching with interactive whiteboards	A16	1

Table 2 highlights that only a limited number of studies are built upon practice/application of EFL teachers through the courses tailored to suit the needs of EFL teachers in accord with TPACK (A4, A7, A10, A13, A24). EFL teachers in some of these studies are required to design lesson plans (A10, A13, A24). One study requires pre-service EFL teachers to create digital stories through some digital tools (A4). As well, in one study, pre-service EFL teachers are demanded to give training about the use of a digital tool and prepare digital materials to use in language classrooms (A7). One study is carried out with pre-service

EFL teachers in order to analyse the effectiveness of a five-week workshop and training sessions (A6). Finally, there is one study investigating in-service EFL teachers' TPACK and their attitudes toward interactive whiteboards (A15).

4.7 Conclusions Obtained in the Reviewed Studies

Table 3: Conclusions obtained in the reviewed studies

Conclusions	Studies	f
Participants have higher levels of TPACK	A2, A8, A9, A12, A14, A16, A17, A18, A19, A21, A22	11
Considerable increase in TPACK after intervention	A4, A6, A7, A10	4
Differences between dimensions of TPACK and gender	A2, A5, A12	3
TPACK levels of in-service teachers are not high	A11, A23, A24	3
No significant difference between gender and TPACK level	A16, A20	2
No significant difference between TPACK means and academic achievement	A5, A17	2
After TPACK training/workshops, pre-service teachers' skills and awareness about technology increases	A6	1
Customised scale for EFL is valid and reliable	A3	1
No significant difference between gender and year level	A9	1
Considerable differences in perceived TPACK among different participants	A1	1
Pre-service teachers start to adjust technology, content and pedagogy to fit each other	A13	1

Table 3 demonstrates that the studies conducted to portray status quo respecting EFL teachers' TPACK report that both pre- and in-service EFL teachers have higher TPACK competencies (A8, A12, A14, A16, A17, A19, A21). Besides, some studies conclude that pre-service EFL teachers (A9, A22) and in-service EFL teachers (A18) have a high level of self-efficacy beliefs concerning technology integration, while some studies ascertain the fact that TPACK level of in-service EFL teachers is not high (A11, A23, A24). Some studies reveal considerable increase in EFL teachers' TPACK, following the interventions (A4,

A6, A7, A10). In the same vein, one study also indicates that pre-service EFL teachers' TPACK skills and awareness about technology increase after five-week workshop and training (A6).

Additionally, in one study it is revealed that intervention prompts pre-service EFL teachers to design lesson plans in accord with the integration of technology with other dimensions (A13). In a study making a comparison between pre-service, teacher certificate programme, and in-service EFL teachers, it is indicated that there is a significant difference with regard to self-perceptions of those teachers (A1). One study highlights the development of TPACK-EFL that serves as reliable and valid data collection instrument in the field of teaching EFL (A3). While some studies questioning relationships between TPACK and gender reveal that there is difference between the dimensions of TPACK and gender of the participants (A2, A5, A12), some studies report that there is no significant difference between TPACK and academic achievement (A5, A17) and between gender and year level of pre-service EFL teachers (A9).

4.8 Recommendations from the Reviewed Studies

Table 4: Recommendations from the reviewed studies

Recommendations	Studies	f
Training programmes for in-service EFL teachers should be arranged	A1, A6, A14, A16, A18, A20, A21, A22	8
A new course for pre-service EFL teachers is a necessity	A1, A2, A18, A22, A23	5
Technology courses for pre-service EFL teachers should combine coursework with fieldwork	A7, A11, A13	3

Recommendations drawn from the reviewed studies clearly show that in order for in-service EFL teachers to develop TPACK skills/competencies, design of training programmes covering topics such as integration of educational technology into curricula and material development and use of technological tools/applications is urgently required (A1, A6, A14, A16, A18, A20, A21, A22). Since there is the paucity of a course designed for specifically pre-service EFL teachers, recommendations centre on the development of courses that can enable pre-service EFL teachers to get involved in activities and tasks to develop technological skills (A1, A2, A18, A22, A23). In addition to this, instead of provision of solely theoretical knowledge, such a course is expected

to bridge theory into practice through real life tasks such as classroom problems and practices concerning the use of technology throughout that course in order that pre-service EFL teachers can apply what they gain in coursework to their practicum (A7, A11, A13).

5. Discussion & Conclusion

Findings of this meta-synthesis reveal the fact that reviewed studies are mainly conducted to find out status quo regarding EFL teachers' TPACK, examine the relation between TPACK and various components (i.e. beliefs, attitudes, gender), and investigate the effects of TPACK-related interventions on professional development of EFL teachers. Considering the number of the studies that focus on identification of TPACK competency and determination of relation between TPACK and some variables, majority of the reviewed studies (64%) are carried out in order to delineate pre-service and in-service EFL teachers' TPACK skills, competencies, attitudes, or beliefs through mainly quantitative data collection instruments like a TPACK survey or a scale.

Reviewed studies demonstrate a lack of a needs analysis step that could allow teacher educators and trainers to collect as much information regarding EFL teachers' needs of content, pedagogy, and technology as possible especially prior to any arrangement of TPACK-related training and professional development activities. As well, reviewed studies imply a requirement of longitudinal studies aiming to assess TPACK progress of EFL teachers in training and professional development activities through multiple reliable and validated data collection instruments.

The reviewed studies also accentuate that the number of studies employing experimental and case study research designs is not satisfactory vis-à-vis other studies designed in quantitative and mixed methods research paradigms. Moreover, eighteen of the reviewed studies measuring EFL teachers' TPACK through a self-reporting instrument (i.e. a TPACK survey, questionnaire, or scale) show that the participants have higher levels of TPACK. Self-report instruments like TPACK ones are used as descriptive surveys to describe the characteristics of a group at one point in time (Mertens, 2005). In addition to this, a self-report instrument by its very nature makes researchers trust what they have experienced or what participants believe is true. Thus, it is of great necessity to utilise various instruments such as observations, video-based

observations, or interviews that may assist teacher educators and trainers in measuring TPACK-related practices, applications, and experiences of pre- and in-service EFL teachers in a classroom setting.

One study (A3) investigates the provision of an assessment tool for preservice EFL teachers, and reports its development and validation processes as a self-report survey peculiar to the field of EFL. As a result of statistical analysis, the TPACK-EFL survey showing a seven-factor structure consistent with TPACK framework is constructed with a total of 39 items: 9 TK, 5 CK, 6 PK, 5 PCK, 3 TCK, 7 TPK, and 4 TPACK. Albeit the importance and recognition of English in Turkey, there is the scarcity of studies on developing EFL-specific TPACK instrument for in-service Turkish EFL teachers, which may thus not enable researchers and teacher trainers to both ascertain in-service EFL teachers' potential problems in integrating content, pedagogy, and technology in classroom environments and assess how much they are successful in merging content and pedagogy into technology in classroom teaching.

Although there are some (including articles and MA theses) studies with pre-service and in-service EFL teachers, there is a descriptive study (a PhD thesis) conducted with 268 English lecturers in different higher education institutions, with a view to identifying the relation between their TPACK competencies and some variables such as faculty, gender, education level, age, and professional seniority. The reviewed studies reveal that the number of PhD thesis and other kinds of studies on English lecturers at tertiary level is unsatisfactory. The reason why there are more studies carried out with pre-service EFL teachers might be attributed to accessibility and availability of that group. The reason why studies at tertiary level are rare might be ascribed to the misconceptions of English lecturers at tertiary level that partaking such a study would be of no benefit to them and bring them extra workload with loss of time.

Given the provision of hands-on practices and experiences for pre-service EFL teachers in the reviewed studies, there are a very limited number of studies (A4, A7, A10, A13, A24) that are built upon, allowing pre-service EFL teachers to learn how to create digital stories (A4), design materials (A7, A24), and prepare lesson plans (A10, A13) by integrating content, pedagogy, and technology. Such studies are likely to allow for active engagement of pre-service EFL teachers with technological tools, thereby increasing pre-service EFL teachers' TPACK as well as their practical knowledge of technology in EFL context.

Similarly, the design of teacher education or training programme integrating technology with content and pedagogy should offer teachers opportunities to employ technology in enhancing their professional skills/competences, which may spur teachers into gaining authentic learning experiences (Hsu & Sharma, 2006). Thus, more credence to designing such teacher education and training programmes needs to be given in an attempt to evaluate whether this way of blending technology with content knowledge and pedagogy is fruitful in developing EFL teachers' TPACK.

A course for teacher education in particular for pre-service EFL teachers needs to be designed in a way that can engage teachers in authentic instructional practices and real-life problems in which they are expected to resolve those authentic instructional and technological issues so that they reflect their real TPACK skills/competencies (Gao et al., 2011; Jaipal & Figg, 2010; Koehler et al., 2007; Matherson et al., 2014). Similarly, key features of designing professional development training for in-service EFL teachers highlight teachers' partaking in active, meaningful, and engaging group activities with their colleagues having the same teaching goals (Desimone et al., 2002), since creating authentic situations as integral part of professional development (Greeno et al., 1996) may lead to a successful professional development. In the same vein, design of a professional development embedded within teachers' own classroom using their own materials in that setting serves the same purpose (Putnam & Borko, 2000), since teachers hold the view that situational (teachers' own classrooms) and authentic classroom practices are of primal importance to effective professional development (Holmes et al., 2002; Meier, 2005).

In addition to significance of physical setting for EFL teachers' professional development, social contexts of learning where knowledge is jointly constructed in a social environment assert that what is learned needs to be presented by taking situational and social contexts into consideration while developing EFL teachers' TPACK. In line with the principles of social constructivism, designing a course in teacher education or professional development programme may allow pre-service and in-service EFL teachers to work collaboratively on tasks and give insights into their practices about teaching with technology. To illustrate, in a study conducted with pre-service mathematics teacher, Harrington (2008) contends that design of situational and social learning contexts with collaborative and engaging group tasks prompt those teachers to gain experiences in designing, implementing, and reflecting on teaching subject matter with proper technology.

If content of a course for pre-service EFL teachers or a professional development programme for in-service EFL teachers is merely built upon technology itself regardless of particular connection with content-specific samples and sound pedagogical foundations, both pre-service teachers and in-service EFL teachers are not likely to incorporate technology into their teaching practices (Hughes, 2005; Niess, 2005). It is therefore of great necessity to provide teachers with educational technology experiences laying emphasis on learning content-specific uses of technology, which may allow EFL teachers to transfer what they have learned to their further teaching practices in classroom settings.

Researchers, teacher educators, and trainers in the field of teaching EFL in Turkey should initiate the process with a needs analysis to discover what potential pre-service and in-service EFL teachers are actually in need, since teachers are more likely to adopt and utilise technology when they find them to be valuable (Ertmer & Ottenbreit-Leftwich, 2010) and relevant to their real classroom practices (Zhao, 2003). Instead of studies that centre on portraying status quo, further studies should investigate how blended or online learning trajectories to enhance EFL teachers' TPACK could be integrated into teacher education courses or professional development programmes. Further studies need to focus on how more professional development programmes tailored to suit English lecturers' needs could be arranged with the aim of integrating technology into their teaching effectively. Besides, instead of employing instruments like self-reporting ones to measure EFL teachers' TPACK, researchers must be absolutely cognisant of the importance of using other data collection instruments such as observations, video-based observation, or interviews that may help researchers measure more accurately how much EFL teachers could successfully integrate technology into their teaching practices.

Courses like special teaching methods, computerised teaching, teaching technologies, and material design offered to pre-service EFL teachers in education faculties should be thoroughly renewed in the light of current educational technologies such as blended and online learning models. In this respect, design of curricular activities in such courses should be mutually complementary to each other from theoretical and practical perspectives. More importantly, redesign of such courses' content needs to be aligned with requirements and principles of teaching English as a foreign language in order for pre-service EFL teachers to get the most out of technology in the course of their further teaching practices in classroom settings.

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CHAPTER XII

THE DEVELOPMENT PROCESS OF PRESCHOOL EDUCATION IN “SHOURA” NATIONAL EDUCATION CONSULTATION COUNCILS

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1. Introduction

The concept of “*shoura*” (consultative assembly) has both religious, social and cultural foundations in Turkish history (Turkish Education Association, 2014). In Turkish Dictionary (2005), it was defined as a consultative assembly organized to discuss an issue and the National Education Consultation Council is the highest consultative council in the Ministry of National Education and investigates and decides on educational issues. The council is assembled every 4 years upon the invitation of the minister. The minister may call for an extraordinary meeting when necessary (Altay, Ira, Bozcan & Yenal, 2011).

The first national education council was called in 1939. Nineteen councils have been organized at certain intervals until 2020 (Gürkan & Gökçe, 1999). Different dimensions of Turkish education system have been scrutinized in each council. Council decisions provide important data about the current problems in Turkish education system (Daş, 2019).

The aim of the study in this section is to reveal the decisions taken regarding pre-school education in the National Education Councils held since 1921 and

their implementations. The study is important in terms of reflecting the decisions taken regarding pre-school education and the importance given to pre-school education in the National Education Councils. In this section, the literature on the National Education Councils has been researched and documents have been collected. In this process, researches on pre-school education, the importance of pre-school education and pre-school education in the National Education Councils were obtained, articles published in various sources were examined and texts in electronic media were used.

2. 1921 Education Conference and Boards of Science (1921-1926)

As Atatürk worked to establish our Republic during the most critical days of the War of Independence, he also attempted to determine the principles of our national education system. In planning educational studies and the development of the national education system, the contributions of the 1st Education Conference and Boards of Science were significant (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_doses2017_09/29164441/_Heyeti.ilmiye.pdf).

1st Education Conference (July 16, 1921): The first education conference organized in Ankara in 1921 was significant in Turkish history. The national education directors, school principals and teachers of the provinces that were not under invasion, department directors from the ministry and Copyright and Translation Board members participated in the conference (Sakaoğlu, 2003; Üçler, 2006). Atatürk inaugurated the conference with a speech that described the foundations of national education (Kapluhan, 2014; Akyüz, 1983). In the conference that should be considered as the beginning of a new era, Atatürk made a historic speech that detailed the principles of the reforms, and his thoughts on education, science and culture, and expectations from teachers (Ayküz, 2006).

The conference agenda included topics such as data on primary and secondary education students, curricula, education system requirements, the contribution of education to productivity growth, increase in primary education from 4 years to 5, and the requirement to develop different curricula for rural and urban residents due to differences between their requirements (Koçak, 2009; Kılıç & Güven, 2017).

The Education Conference could not work during the predetermined period and address all topics in the agenda and could not scrutinize the addressed

topics in depth due to the prevailing war conditions. However, despite these circumstances, certain important issues on primary and secondary education were discussed.

The main importance of the Education Conference was the fact that it allowed teachers to congregate during a do-or-die war to discuss the objectives of education. In the treasured inauguration speech by Atatürk, the establishment of educational principles of the new state provided strength and hope for the society.

Science Boards: Science boards convened three times in 1923, 1924 and 1925. These boards has undertaken the duties of the national education office and the national education councils at the time (Kılıç & Güven, 2017).

The first science board was chaired by the National Education Minister İsmail Safa Özler, and convened between July 15 – August 15, 1923 in Ankara with the participation of the undersecretary, general managers in the ministry, representatives of related ministries, college professors, vocational school principals, and representatives of various educational institutions. The agenda included the organization of national culture and statistics general directorate, national language, national dictionary, national music studies, the establishment of national history and geography institutes, and primary and secondary curricula (Üçler, 2006; Sakaoğlu, 2003).

The second science board was convened in 1924 in Ankara and chaired by National Education Minister Vasıf Çınar with the participation of certain college professors, and teacher training schools for girls and boys and high school principals. The board decided to reduce the primary school period to 5 years, separation of middle and high schools where each school will be for 3 years, reducing secondary education from 7 to 6 years, to increase teacher training period from 4 years to 5, establishment of full classes in high schools for girls, similar to high schools for boys, to expand middle school, high school and teacher training school curricula to include sociology course, to expand primary school curriculum, and to mandate textbooks (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar2017_09/29164441/_heyeti_ilmiye.pdf; Üçler, 2006).

The third science board was convened on December 27, 1925 in Ankara and chaired by the National Education Minister Mustafa Necati with the participation of National Education Ministry undersecretary, inspection board chairman, copyright and translation board president, certain ministry inspectors,

certain general managers and department directors, high school and teacher training school principals and teachers. Issues such as the employee rights of teachers, adoption of co-education in middle schools, adequate use of the national education resources, and concentration of teacher training schools and other vocational schools at certain centers were discussed (Ataınal & Özalp, 1977; Deniz, 2001; Sakaođlu, 2003).

3. National Education Councils Between 1939 and 1948

Between 1939 and 1948, the 1st National Education Council was convened in 1939, the 2nd National Education Council was convened in 1943, and the 3rd National Education Council was convened in 1946. The agenda and resolutions in these councils are detailed below.

3.1 1st National Education Council (1939)

The 1st National Education Council convened between July 17 and 29 in 1939 was inaugurated by the National Education Minister Hasan Ali Yücel. Plans and principles of the Republican Education, ordinances for institutions in various education levels, and all curricula were scrutinized by the council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/dosyalar/surular/dokumanlar/1_sura.pdf). In the 1st National Education Council, preschool education was not discussed.

3.2 2nd National Education Council (1943)

The 2nd National Education Council was convened between February 15 and 21 in 1943 and inaugurated by the National Education Minister Hasan Ali Yücel. Improvement of moral training and the productivity in native language in all educational institutions, and the methods and tools in the instruction of Turkishness in history courses were discussed in the council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29164619_2_sura.pdf). Similar to the previous council preschool education was not discussed in the 2nd National Education Council.

3.3 3rd National Education Council (1946)

The 3rd National Education Council was convened between December 2 and 10 in 1946 and inaugurated by the National Education Minister of the time Reşat

Şemsettin Sırer. Commerce middle and high schools curricula and regulations, art middle schools and institutes for boys curricula and regulations, institute for girls curricula and regulations, Istanbul Technical School regulations, the adaptation of the middle and equivalent technical school regulations to current conditions with teachers and instructors, adaptation of the measures required for the collaboration between the school and parents were discussed in the council (Üçler, 2006; Aslaner, 2008). Similar to the previous councils, preschool education was not discussed in the 3rd National Education Council.

4. National Education Councils Between 1949 and 1958

Between 1949 and 1958, the 4th National Education Council was convened in 1949, the 5th National Education Council was convened in 1953, and the 6th National Education Council was convened in 1957. The council agenda and resolutions are detailed below.

4.1 4th National Education Council (1949)

The 4th National Education Council was convened between August 22 and 31 in 1949 and inaugurated by the then Prime Minister Şemsettin Günaltay and National Education Minister Tahsin Bengüoğlu. The primary school curriculum adopted before the 1948-49 academic year, the new middle school curriculum, determination of the high school course content based on 4-year education, reorganization of the programs for educational institutes and tertiary teacher training schools that train middle and high school teachers based on new requirements, review of democratic principles in education and instruction were addressed in the council (Deniz, 2001; Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29164715_4_sura.pdf).

No decisions were made on preschool education in the 4th National Education Council. However, democratic education was the most promoted topic in commission reports. The commission proposed non-formal education in this topic. The report stated that non-formal democratic education was categorized in two groups: preschool education and public education. Thus, it was decided to establish the Public Education Department in the ministry to establish pre-school institutions to assist parents and popularize preschool education (Dinç, 1999). This was the first step towards preschool education taken by the council.

4.2 5th National Education Council (1953)

The 5th National Education Council was convened between February 10 and 14 in 1953 and inaugurated by the National Education Minister of the time Tevfik İleri. Preschool curriculum and regulations for kindergartens, the necessary health measures in primary schools, the report on children who require special education and orphanage regulations, review of the code on children who need protection and determination of the articles that require to be changed, the draft primary education code, plans for compulsory primary education, review of primary school curriculum, draft primary school regulations, primary education teacher training, the new teacher training schools and village institutes curricula and career development, other issues about primary school teachers, and general problems in primary education were discussed in the council (Deretarla Gül, 2008; Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29164807_5_sura.pdf)

For the first time, preschool education was discussed in detail during the 5th National Education Council. Preschool Education and Instruction Investigation Commission that included 19 members was mandated. The report developed by the commission was accepted in the General Council and became a council resolution. Municipalities, private administrations and the state were designated to establish preschool educational institutions and it was determined that teachers who are teacher training school graduates or graduates of specific branches established for this purpose, and those who are institute for girls graduates and successfully completed special courses could be employed in these institutions (Üçler, 2006; Ünüvar & Pişkin Çivik, 2017). Furthermore, the report included the educational tools required in kindergartens, details of the physical dimensions of kindergartens, and a food and nutrition list for children (Dinç, 1999). The report was important since it was the first comprehensive document about pre-school education approved in the council.

4.3 6th National Education Council (1957)

The 6th National Education Council was convened between March 18 and 23 in 1957 and inaugurated by the National Education Minister of the time Ahmet Özel. Vocational and technical education and public education were discussed in the council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29164847_6_sura.pdf). Preschool education was not addressed in the council.

5. National Education Councils Between 1959 and 1968

Between 1959 and 1968, the 7th National Education Council was convened in 1962. The council agenda and resolutions are detailed below.

5.1 *7th National Education Council (1962)*

The 7th National Education Council was convened between February 5 and 15 in 1962 and inaugurated by the National Education Minister of the time Hilmi Incesulu. Primary education, secondary education, technical education for girls, technical education for boys, commercial education, measurement and evaluation in education, various proficiency exams, tertiary education, private schools, foreign cultural relations, religious education, physical education and health, national defense education and educational foundations were discussed (Deniz, 2001).

“Kindergartens and kindergarten class regulations” were included in the Article 11 of 13 regulation drafts based on Primary Education Act No:222 in the council (Ünüvar & Pişkin Çivik, 2017).

6. National Education Councils Between 1969 and 1978

Between 1969 and 1978, the 8th National Education Council was convened in 1970 and the 9th National Education Council was convened in 1974. The council agenda and resolutions are detailed below.

6.1 *8th National Education Council (1970)*

The 8th National Education Council was convened between September 28 and October 3 in 1970 and inaugurated by the National Education Minister of the time Orhan Oğuz. Establishment of the secondary education system and reorganization of acceptance in tertiary education were discussed in the council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29165001_8_sura.pdf). Preschool education was not in the agenda in 8th National Education Council and no decisions were made on preschool education.

6.2 *9th National Education Council (1974)*

The 9th National Education Council was convened between June 24 and July 4 in 1974 and inaugurated by the National Education Minister of the time

Mustafa Üstündağ. Programs for the entire national education system and rules that regulate the student flow were discussed in the council (Üçler, 2006).

In this council, preschool education was described as a part of formal education (Büyükkaracı, 2012). The context, objectives, duties and the establishment of preschool education were described as follows (Altay, İra, Bozcan & Yenal, 2011; Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29165045_9_sura.pdf:

Context

Preschool education includes the education of children who are not yet eligible for compulsory primary education. This education is voluntary (National Education Basic Law 19th article).

Aim and Duties

Based on the general objectives and basic principles of national education, the aim and duties of preschool education are as follows:

- *Ensure the physical, cognitive and emotional development of children and acquisition of good habits*
- *Preparation of children for basic education*
- *Provide a common development environment for the children of disenfranchised parents and conditions*
- *Ensure that children speak accurate and good Turkish* (National Education Basic Law 20th article).

Establishment

Preschool education institutions could be established as independent kindergartens, or as kindergarten classes in primary education institutions when necessary, or as practice classes in other relevant educational institutions. The place of establishment of preschool education institutions and related priorities will be regulated by the Ministry of National Education.

The conditions under which businesses subject to the Labor Act should establish preschool education institutions are indicated in regulations that would be proposed jointly by the National Education and Labor ministries (National Education Basic Law 21th article).

7. National Education Councils Between 1979 and 1988

Between 1979 and 1988, the 10th National Education Council was convened in 1981, the 11th National Education Council was convened in 1982, and the 12th National Education Council was convened in 1988. The council agenda and resolutions are detailed below.

7.1 10th National Education Council (1981)

The 10th National Education Council was convened between June 23 and 26 in 1981 and inaugurated by the National Education Minister of the time Hasan Sağlam. Turkish national education system, curricula, rules that regulate student flow and teacher training were discussed in the council (Deniz, 2001). The following resolutions were published after the 10th National Education Council:

- *The preschool education of 0-5 years old children and the tasks of preschool education are determined as follows;*
 - *Ensure an environment that facilitates cognitive, emotional and motion development of children and acquisition of good habits.*
 - *Ensure that children speak accurate and good Turkish*
 - *Preparation of children for basic education*
 - *Assistance in the education of the parents on child development (Cited by Büyükkarcı, 2012).*
- *Kindergarten classes are currently voluntary but could be compulsory in the future,*
- *Determination of the objectives and duties of preschool education, and popularization of preschool kindergarten classes to include rural and slum areas and to prioritize Turkish language education,*
- *Enactment of laws that would ensure the collaboration between National Education Ministry and other institutions to the popularization of preschool education in the society and the contribution of these institutions to preschool education,*
- *Development of preschool curricula and handbooks for preschool teachers,*
- *Development of instructional and game material adequate for preschool curricula in Ministry of National Education Course Material Production Center,*
- *Development of resource material for preschool children and their parents,*

- *Development of the student development file and monitoring tools to follow up the development of children in preschool education,*
- *Development of tools to identify those who should benefit from the preschool education,*
- *Employment of current resources to train preschool teachers,*
- *In-service education of the current preschool teachers, administrators, and specialists,*
- *Establishment of 1 year preschool classes starting from preferential regions and practice preschool classes in vocational high schools for girls,*
- *Training teachers for preschool institutions and primary schools (Altay et al., 2011, p. 665; Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29165120_10_sura.pdf, p. 1).*

7.2 11th National Education Council (1982)

The 11th National Education Council was convened between June 8 and 11 in 1982 and inaugurated by the National Education Minister of the time Hasan Sağlam. The improvement of teacher training, pre-service problems in teacher training and recommendations, education specialist training, the problems of teachers and specialists and recommendations were discussed in the council (Üçler, 2006).

The 11th National Education Council manifest stated that preschool teachers should primarily have general culture and vocational knowledge and the principles for training preschool teachers were determined (Akar, 2017).
Preschool Teacher Education Programs;

The Goals of Preschool Teacher Training Programs: The pre-service teacher should

- *Have basic field knowledge.*
- *Know child development and the requirements of developmental attributes.*
- *Acquire knowledge and skills that allow the analysis, recognition and providing assistance for the development of the children.*
- *Identify the problems of the children, take necessary action, and find solutions.*
- *Plan, implement, evaluate and improve daily, unit and annual activity programs.*
- *Select, evaluate and improve the material for preschool children.*

- *Acquire the skills to employ field resources and follow-up innovations.*
- *Conduct preschool education research and analyze the results.*
- *Collaborate with other preschool staff and administrators.*
- *Utilize local resources and facilities.*
- *Communicate with parents and recommend solutions for the problems they experience with their children.*
- *Play a musical instrument based on personal ability.*

Functions

- *Instruction of general preschool education concepts*
- *Instruction of child development*
- *Acquisition of child observation, recognition, and assistance knowledge and skills*
- *Acquisition of program development, implementation, analysis and improvement methods and skills*
- *Acquisition of preschool material selection and development habits*
- *Acquisition of perusal of other field resources habits*
- *Acquisition of research skill and habit*
- *Acquisition of groupwork and collaboration skills*
- *Acquisition of the employment of local facilities and resources and creativity skills*

Principles: Preschool teacher training should be based on the following principles:

- *Ideally preschool teacher training institutions should provide 4-year undergraduate education. This period could be shorter due to current labor requirements.*
- *The instruction is semester-based. (4 years, 8 semesters)*
- *The courses are credit-based.*
- *The curriculum includes general culture, field and vocational courses.*
- *Vertical and horizontal transfers are allowed.*
- *The curriculum includes elective courses.*
- *Two semesters are dedicated to school practice.*
- *The student activities are promoted in theoretical courses via assignments and seminars.*
- *Groupwork is promoted in classes.*
- *Public kindergartens are established in the institutions.*

Content and Activity Categories

- *Content and activity categories that aim to meet daily basic needs of the child and the acquisition of associated good habits: Nutrition, Child Diseases, Childcare, Community Health, First Aid, Psychological Health, etc.*
- *Content and activity categories for the instruction of social and cultural activities: Music, Painting, Physical Education, Literature, Drama, Concerts etc.*
- *Content and activity categories for Turkish language instruction: Turkish Language and Literature, Composition, Competition, Debate etc.*
- *Content and activity categories for national integration based on Kemalism: History of Turkish Revolution, Debate, Panel, Exhibition etc.*
- *Content and activity categories for the instruction of basic scientific concepts: Science and Nature, Mathematics, Simple Scientific Experiments, etc.*
- *Content and activity categories for material selection, development and evaluation: Educational Technology, Creative Children's Activities, Children and Books, Child Games, Practice, etc.*
- *Content and activity categories for program development, evaluation and improvement: Curriculum Development, Measurement and Evaluation, School Practice, etc.*
- *Content and activity categories for the acquisition of collaboration skills with parents or other staff: Human Relations, Educational Management, Educational Sociology, Counseling, Groupwork Methods, Meetings, etc.*
- *Content and activity categories for the acquisition of research skills: Research Methods, Statistics, Assignments, Seminars, etc.*

(Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29165200_11_sura.pdf, p.7)

7.3 12th National Education Council (1988)

The 12th National Education Council was convened between June 18 and 22 in 1988 and chaired by the National Education Minister of the time Hasan Celal Güzel. Turkish education system, tertiary education, teacher training, new educational technologies, Turkish and foreign language education, educational finance and instruction programs were discussed in the council (Deniz, 2001).

The following resolutions were accepted in the council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29165252_12_sura.pdf, p.3):

- *Full integration of the National Education System from pre-school education to graduate education, provided that the necessary regulations are enacted.*
- *Providing good counseling service to our students starting in pre-school, based on future versatile plans to achieve the national educational and instructional goals as soon as possible in compliance with the economic and social conditions of our country.*
- *Until the time when preschool and kindergarten teachers will be trained in higher education, “teachers assistants” or “educators” will be assigned to work with existing teachers and employment of high or equivalent school graduates for this purpose after pedagogical formation.*
- *Maintenance of two-year higher education programs that train pre-school teachers (kindergarten and kindergarten classes), and admittance of teacher high school graduates based on a certain quota and SSE score advantages and vocational high school graduates based on SSE professional predisposition test, and inclusion of these programs in educational vocation high schools.*
- *Development of preschool curricula that compensate familial challenges, provide education and childcare for the children of working parents and allow a swift transition to primary education based on the conditions, social and cultural structure of Turkey and other systems.*
- *Improvement of “education with games” for 66-72 months old group, and development of a separate curriculum and removal of the current curriculum.*

8. National Education Councils Between 1989 and 1998

Between 1989 and 1998, the 13th National Education Council was convened in 1990, the 14th National Education Council was convened in 1993, and the 15th National Education Council was convened in 1996. The council agenda and resolutions are detailed below.

8.1 13th National Education Council (1990)

The 13th National Education Council was convened between January 15 and 19 in 1990 and inaugurated by the National Education Minister of the time Avni Akyol. Concept, context and trends in formal education, organization and collaboration, investment, financing and personnel were discussed in the council (Ministry of Education, 2020: https://tkkb.meb.gov.tr/meb_iys_

dosyalar/2017_09/29165326_13_sura.pdf). Preschool education was not discussed in 13th National Education Council.

8.2 14th National Education Council (1993)

The 14th National Education Council was convened between September 27 and 29 in 1993 and chaired by then National Education Minister Nahit Menteşe to discuss educational management and preschool education. On preschool education, its significance and dissemination, providing and employing resources for preschool education, preschool curricula and tools, coordination and collaboration in preschool education, preschool education regulations, preschool education teacher training and employment, and preschool education models were discussed (MoNe, 1993, cited by Deretarla Gül, 2008). The following resolutions were accepted in the council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29165401_14_sura.pdf, p.3). The 14th National Education Council was a significant step in preschool education.

- *Preschool education will be developed and popularized to achieve the development plan goals.*
- *The preschool educational institutions that accept the same age groups, kindergarten will be defined as private and public educational institutions that serve 36-72 months old children, supervised by the Ministry of National Education, and kindergarten class will be defines as preschool educational institutions established in public and private kindergartens, primary schools and primary education schools to serve 60-72 months old children.*
- *Based on the cooperation between the Ministry of National Education, the Ministry of Labor and Social Security and the Ministry of Health, the enterprises will be allowed to open day care centers and the regulations will be expanded to include this development. This issue should also be considered in health reform.*
- *For all levels and positions in Pre-School Education, the qualifications and duties and responsibilities of the personnel will be determined and these will be associated with a certification system.*
- *Necessary work will be conducted to open adequate number of pre-school education institutions with sufficient capacity in mass housing projects.*

- *State loans and incentives for the development of the buildings of preschool daycare facilities orphanages, rehabilitation centers for disabled children, etc. will be increased and tax advantages will be enacted.*
- *Establishment of preschool education institutions by municipalities, state economic enterprises, foundations, religious organizations and other private entrepreneurs will be encouraged and supported.*
- *Regulations will be developed to allocate public lands for the construction of preschool education institutions and to employ of municipalities and cooperatives for this goal.*
- *“Parent schools” will be popularized to train parents on preschool education.*
- *A research project will be developed and conducted to collect quantitative data on preschool education services in Turkey.*
- *In addition to investment incentives for the development and popularization of preschool education, additional scores will be awarded in preschool education incentives and “home daycare” project will be disseminated.*
- *The “Preschool Education Fund” will be established for the development and popularization of preschool education and funded by the levies on municipality revenues, savings, private educational institutions, revenues accrued from the sale of goods seized at customs, a percentage of the housing fund tax, and educational foundations.*
- *Kindergarten with double-shift schooling project will be implemented in small provinces and districts and areas where low-income families live in slum areas.*
- *Ministry of National Education and other public buildings will be renovated and used for preschool education and the existing buildings will be employed with a rational and productive approach.*
- *Build-operate-transfer model will be employed in the dissemination of preschool education and projects adequate for the regional conditions will be developed.*
- *Ministry of National Education will develop projects in collaboration with the universities and these will be applied in pilot schools and these programs will be developed to meet the needs of the child and within a scientific framework and based on the flexibility principle to meet the needs of various organizations and institutions based on the pilot scheme results.*

- *Depending on the approval of Ministry of National Education, tax incentives and customs exemptions, and loans will be provided for businesses that produce or import material such as preschool children's books and toys to promote these enterprises.*
- *"Preschool Education Centers" will be established and "Teacher Resource Units" will be established in these centers to provide, curricula, material, counseling and guidance services for teachers.*
- *The Main National Education Act no:32- 1739 will be amended to include preschool education, and required work to draft a "Preschool Education Act" that would include all preschool education regulations will be conducted.*
- *"Curricula development studies" will be conducted with the collaboration between the Ministry of National Education and universities to integrate preschool teacher training tertiary education institution curricula and practice kindergartens will be established in these institutions, the child development and education teaching program and kindergarten teacher training program in higher education teacher training institutions will be separated. Practice kindergartens will be established in these institutions.*
- *Preschool education courses will be included in the curricula of education faculties that train classroom teachers and classroom instruction courses will be included in the curricula of education faculties that train preschool teachers.*
- *Student quota reserved for college students who select preschool education field will be increased in the Act no: 3580.*
- *Job descriptions of the preschool education staff will be analyzed, and successful preschool teachers will be appointed in foreign countries. These will receive a preparatory training, which will include foreign language training.*

8.3 15th National Education Council (1996)

The 15th National Education Council was convened between May 13 and 17 in 1996 in Ankara and chaired by then National Education Minister Turhan Tayan. Primary education and guidance, restructuring the secondary education, reorganization of acceptance in higher education, sustainable fulfillment of the educational requirements of the society, and financing the education system were discussed in the council (Daş, 2019).The following

resolutions on preschool education were accepted in the 15th National Education Council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29165430_15_sura.pdf, p.4):

- *In the near future, preschool education for 5-6-year old children should be integrated with primary education and 8 years of primary education should be compulsory, and a single diploma should be given after 8 years, students should be oriented for high school or vocational education in the 9th grade; thus, compulsory primary education should be 2+8+1 years. In this period, where childhood is fully experienced and children learn about themselves and parents learn about their children, children should not be employed as apprentices. In the long-term, compulsory education should be until the child is 18 years old.*
- *The physical structure of preschool buildings should be organized based on the requirements of special education and preschool children (Ramps, Elevator, Desks, Playground etc.).*
- *Parent education should be scrutinized as an important dimension starting from preschool age. “Parent Participation Programs” and “Parent Schools” should be disseminated.*
- *Private and public preschools that operate under the supervision of other ministries and organizations in provinces (daycare, kindergarten) should be identified and supervised by the Ministry of National Education.*
- *To increase the participation in formal education, daycares, and kindergarten classes should be established in public education centers with adequate facilities to train both the children and their mothers.*

The council resolutions included the phrase “In the near future, preschool education for 5-6-year-old children should be integrated with primary education and 8 years of primary education should be compulsory (2+8+1),” which was a significant step towards the integration of 2 years of preschool in compulsory education (Akar, 2017).

9. National Education Councils Between 1999 and 2008

Between 1999 and 2008, the 16th National Education Council was convened in 1999 and the 17th National Education Council was convened in 2006. The council agenda and resolutions are detailed below.

9.1 16th National Education Council (1999)

The 16th National Education Council was convened between November 13 and 17 in 1999 in Ankara and chaired by then National Education Minister Metin Bostancıoğlu. Restructuring vocational and technical education in the secondary education system by increasing their weight, vocational education and employment in schools and businesses, training vocational and technical education teachers, acceptance of vocational and technical school graduates in higher education without an exam, and financing vocational and technical education were discussed in the council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2020_02/21142534_16_sura.pdf). Preschool education was not discussed in the 16th National Education Council.

9.2 17th National Education Council (2006)

The 17th National Education Council was convened between November 13 and 17 in 2006 in Ankara and chaired by then National Education Minister Hüseyin Çelik. Transfers between the levels in Turkish national education system, guidance and examination system, and Turkish education system in the globalization and EU membership process were discussed in the council (Daş, 2019). The following resolutions on preschool education were accepted in the council: (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29165619_17_sura.pdf, p.4)

- *Children with mild and moderate disabilities should attend inclusive education in kindergartens for typical children, children with severe disabilities or more than one disability should attend the kindergartens in private and public special education institutions in provinces since preschool education is compulsory for children with disabilities.*
- *The aim should be compulsory preschool education for 60-72 months old children.*
- *It should be compulsory to appoint counselor teachers in independent kindergartens.*
- *Private sector should be incentivized to establish preschool education institutions.*
- *Resource allocation, allocation of land and buildings should be the legal responsibility of local governments.*

- *State incentives and assistance to improve the preschool education daycare, nursery, disabled children rehabilitation center and similar social facility buildings and these institutions should be exempt from taxes.*
- *Establishment of preschool education institutions by municipalities, special provincial administrations, foundations and other entrepreneurs should be promoted and these institutions should be supported.*
- *The Main National Education Act no:1739 should be revised and “Preschool Education Act” should be enacted.*
- *Coordination and flow of census data on the number of preschool children in our country should be ensured between Turkish Statistics Institution and health and civil registry directorates, neighborhood representatives and national education directorates.*
- *Guidance services should start in preschool education.*
- *Schooling rate for 30-60 months old preschool children should reach 80% in 2023, the centennial of the republic.*
- *The share of preschool education should be increased in the general budget.*
- *Primary educations inspectors should be restructured and integrated with the ministry central organization under the name of “educational inspectors.” In the new regulations, the educational inspectors should be appointed in centers at related regions and specialized in guidance and supervision, investigation, preschool, and special education, etc.*
- *The number of foreign students from Turkic republics should be increased with bilateral agreements. Furthermore, preschool, primary and secondary education institutions, where the instruction language is Turkish of Turkey should be established in Turkic republics, the content of the TÖMER Turkish of Turkey instruction should be improved.*

After the 17th National Education Council, compulsory preschool education and Preschool Education Act were not enacted (Daş, 2019). After the council, a continuous increase was observed in the number of schools, teachers and students in preschool education. The number of schools, which was 23,653 in 2008/2009, increased to 27,606 in 2010/2011. The number of teachers increased from 29,342 to 48,330, and the total number of students increased from 804,765 to 1,115,818 (Aktan & Akkutay, 2014). Furthermore, a preschool curriculum was developed for 36-72 months old children in the 2006/2007 academic year and an associated “Teacher Handbook” was sent to schools (Turkish Education System, 2007).

10. National Education Councils Between 2009 and 2020

Between 2009 and 2020, the 18th National Education Council was convened in 2010 and the 19th National Education Council was convened in 2014. The council agenda and resolutions are detailed below.

10.1 18th National Education Council (2010)

The 18th National Education Council was convened between November 1 and 5 in 2010 in Ankara and chaired by then National Education Minister Nimet Çubukçu. The main agenda of the council was “2023 Vision in Education,” and teacher training, employment, and career development, educational environments, institutional culture and school leadership, strengthening primary and secondary education, access to secondary education, physical, arts, skills and values education and psychological counseling, guidance and orientation were discussed in the council (Deretarla Gül, 2008). The following resolutions on preschool education were accepted in the council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2017_09/29170222_18_sura.pdf, p.1):

- *Based on the fact that teaching is a specialty profession, preschool teachers, English language teachers, etc. should not be trained in distance or open education.*
- *Due to the ongoing teacher shortage in preschool, the academician training efforts of the universities should be improved and students in this field should be sent abroad within the scope of Law no: 1416.*
- *Physical education, music and visual arts classes should be instructed by branch teachers starting from pre-school education, and teachers should be employed accordingly.*
- *Kindergarten classes should be abolished by increasing the number of independent kindergartens, or the kindergarten areas and other department in primary schools should be reorganized based on the requirements of this age group.*
- *Due to the age groups and individual differences between the compulsory education students, compulsory education should be reorganized as 13 years, including 1 year pre-school education, 4 years primary education, 4 years orientation and preparation for secondary education, and 4 years secondary education, which would provide the students with the opportunity to experience education in different environments.*

- *Paragraph (b) of Article 76 of the Primary Education and Education Law no. 222 should be revised to increase the 20% primary education subsidy in special administration budget to 40% and to allow the employment of 40% of this subsidy for sportive requirements of primary and secondary education schools.*
- *Values education should be included in all courses and school culture at all levels of education, starting from preschool, including non-formal education, and cooperation between teachers, administrators, students, parents and other stakeholders should be ensured for the employment of media tools to raise awareness.*
- *Starting from pre-school, all educational institutions should allocate a norm position to employ guidance teachers/psychological counselors, especially the schools where female students are the majority, and female counselors/psychological counselors should be prioritized in appointments to maintain more effective guidance services, and a second guidance teacher/psychological counselor position should be provided in boarding and boarding schools).*

Despite the above-mentioned resolutions on preschool education, none were implemented due to unavailability of buildings and teachers. In the 2009-2010 academic year, a compulsory pre-school education pilot scheme was conducted in 32 provinces. However, this was not generalized in the country. The resolution to increase the number of independent kindergartens and abolish kindergarten classes was not implemented (Büyükkarcı, 2012; Daş, 2019).

10.2 19th National Education Council (2014)

The 19th National Education Council was convened between December 2 and 6 in 2014 in Ankara and chaired by the National Education Minister Nabi Avcı. Curricula and weekly course charts, improvement of teacher and educational administrator qualifications, and school security were discussed in the council (Turkish Education Association, 2014). The following resolutions on preschool education were accepted in the council (Ministry of Education, 2020: https://ttkb.meb.gov.tr/meb_iys_dosyalar/2019_12/10095332_19_sura.pdf, p.1)

- *Development of game-based curriculum,*
- *Inclusion of values education in the curriculum,*
- *Supervision of skills development from preschool,*

- *Inclusion of the literature of our culture (fairy tales, stories, fables, poems, etc.) in preschool and primary school educational texts,*
- *Preschool curricula should be revised to develop self-esteem skills and individual awareness of the children,*
- *Inclusion of creative thinking skill achievements in the curricula,*
- *Inclusion of Turkish music in preschool education with suitable instruments,*
- *Inclusion of sports activities that are suitable for their level,*
- *Accurate acquisition of Turkish language,*
- *Adoption of single shift in preschool education,*
- *Kindergarten classes should be abolished by increasing the number of independent kindergartens, or the kindergarten areas and other department in primary schools should be reorganized based on the requirements of this age group.*

Single shift education was adopted in independent kindergartens based on the 19th National Education Council resolution. In primary school kindergartens, double shift education is conducted to provide services to more children. In addition, curricula were developed during the Strengthening Preschool Education Project during the 2012-2013 academic year. The 2013 preschool curriculum that was developed in this project was implemented in all preschool education institutions since the 2013-2014 academic year (Çalışandemir, 2017; Şahin, 2017).

CONCLUSION

Nineteen National Education Councils convened between 1939 and 2020. These councils were about all educational and instructional field. In the article study, to understand the direction of “pre-school education,” significant decisions taken on preschool education in the 5th, 10th, 11th, 12th, 14th, 15th, 17th, and 18th councils held in 1953, 1981, 1982, 1988, 1993, 1996, 2006, and 2010 were discussed. The review findings are presented below.

There was no mention of preschool education in the discussion transcripts, resolutions, and implementations during and after the 1st, 2nd and 3rd National Education Councils. In the councils convened between 1939 and 1948, there was no emphasis on pre-school education and more fundamental issues were discussed in the councils. Nothing was implemented concerning the pre-school education in the 4th National Education Council. However, the fact that council discussions included family education of preschool children could be considered

as a first step towards pre-school education. A commission was formed, and a report was presented on preschool education in the 5th National Education Council. The report presented by the commission included issues such as preschool regulations, practices, objectives, its contribution to education and kindergartens, the required educational tools, food and nutrition system for children, and physical conditions. Between 1958 and 1968, the “Regulation on Kindergartens and Kindergarten classes” was enacted in 1962. During this period, there were no other applications on pre-school education. Although preschool education was not discussed in the 8th National Education Council, it was included in a few articles in the 2nd Five-Year Plan, and implementation was requested. Pre-school education was discussed in the 9th National Education Council comprehensively. Preschool education was defined as formal education. The scope of pre-school education was determined. Thus, “pre-school education includes the education of children who have not reached the compulsory primary education age. This education is optional.” Pre-school education was not considered compulsory. The 10th National Education Council could be considered as a serious step towards pre-school education. Although it was not included in council agenda, more than half of the decisions were about pre-school education. The 13th National Education did not include significant developments about pre-school education, neither a report nor a meeting was conducted in this field. The 14th National Education Council was a huge step for pre-school education. The decisions positively affected the fate of pre-school education in Turkey. The preschool education curricula adopted for trial during the 1994-1995 academic year, was generalized and enacted with the decision of the Board of Education and Instruction dated 31.05.2002 (No: 270). Although the 15th National Education Council agenda did not include pre-school education, the resolutions included regulations about pre-school education buildings and inspections and these were also included in the Ministry’s “Execution Plan” as “Implementation Resolutions”. Unfortunately, the 16th National Education Council did not include discussions, reports, or resolutions on pre-school education. This was a period of stagnation for pre-school education after the 14th National Education Council. XVII. Unfortunately, the phrase “efforts should be initiated for compulsory preschool education for 60 - 72 months old children”, which was included in the resolutions in the 17th National Education Council, was not realized. The 18th National Education Council was the point where pre-school education was adopted by the Turkish system and requested to be compulsory.

Although the initial studies on pre-school education date back two hundred years, it could be suggested that Turkey was late in the realization of the significance of pre-school education, and little effort was spent on the field. In the past, the national conditions and the overwhelming emphasis on other formal education levels negatively affected the development of pre-school education. It is necessary to focus on efforts to establish qualified institutions and improve the quality in teacher training to popularize pre-school education in the country, to make preschool education accessible by all social classes.

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