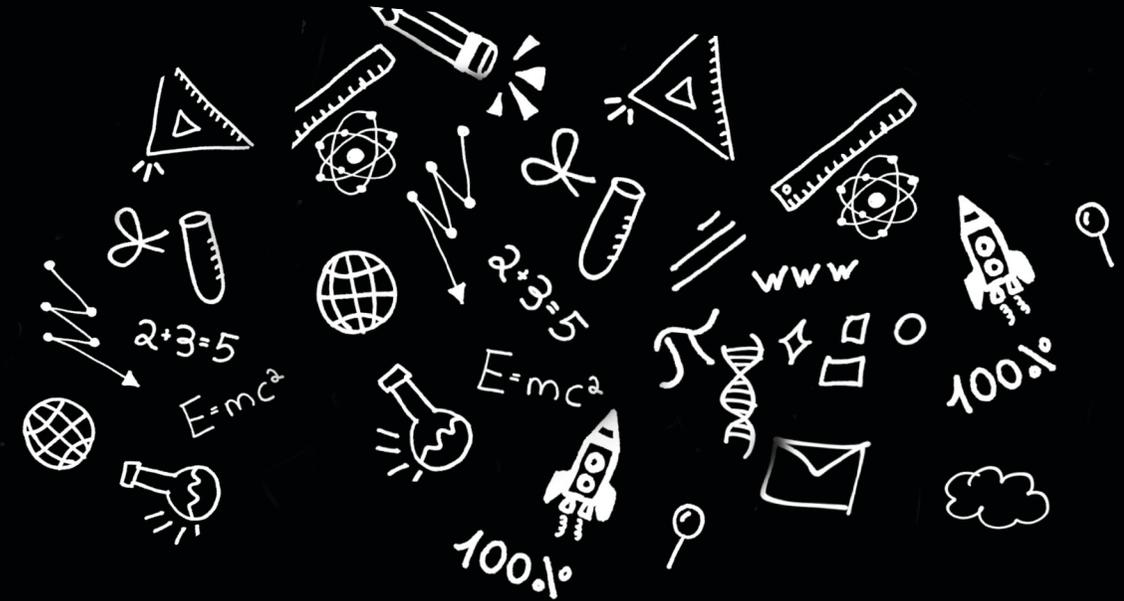


# EDUCATIONAL SCIENCES

RESEARCH, THEORY



Editor

Prof. Dr. Abdülkadir Kabadayı

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# **Educational Science**

**Research, Theory**

**Editor**

**Prof. Dr. Abdülkadir Kabadayı**



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# FOREWORD

The theme of this year's book is *Educational Science: Research & Theory* 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, a great number of chapters were presented in the book. This volume contains 9 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 considerable number of 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 preschool education to educational administration. *Educational Science: Research & Theory* 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.

Editor  
Prof. Dr. Abdülkadir KABADAYI



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# CHAPTER 1

## A PROVERB WORTHS THOUSANDS OF WORDS: EXAMINING THE RELATIONSHIP OF TURKISH PROVERBS WITH THE DEVELOPMENTAL DOMAINS OF CHILDREN FROM TEACHERS' PERSPECTIVES

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### 1. Introduction

Proverbs, which are products of written and oral literature, are concise words in the form of criticism and advice developed based on trial and generalization in the social lives of our ancestors. In Turkish culture and tradition, it is possible to come across many proverbs about social life, child development, and the education of children. Language development, social development, moral development, etc. developmental domains are some of the important areas that make it easier to examine and monitor the development of children. It is seen that Turkish Proverbs for children support the developmental domains of the children. Classification and determination of the extent to which these areas are affected are important for the development and education of children.

A proverb is explained as a short, concise, and stereotyped word, which has an anonymous feature, is considered to be from the ancestors, and consists of the observations and trials that the society has spent over the centuries, and the worldview with common thoughts, attitudes, and behaviors. Proverb, in

Turkic societies, for example, Azerbaijani Turkish: the word ancestors; Turkmen Turkish: the word of ancestors ~ transfer; Gagauz Turkish: interjection; Uzbek: maqól; Uighur Turkish: maqal; Tatar Turkish: mäqal'; Bashkir Turkish: mäqäl; Kmk: proverb ~ proverb; Krç.-Malk.: father's words; Nogai Turkish: ancestral word ~ takpak; Kazakh Turkish: makal; Kyrgyz Turkish: makal; Khakas Turkish: söspek ~ adalarsözi; Tuvan Turkish: üleger tomak; It is expressed as Şor Turkish: Çajılgı sös ([www.tdk.gov.tr](http://www.tdk.gov.tr)).

A strong and deep thought that emerged from the common consciousness of the people, passed through the filter of time, teaching taken from life experiences, shortly and concisely; are common words that indicate advice, rule, tradition, custom (Özdemir, 2006). The subjects of proverbs often vary according to the region and country in which they are used. Since military service and farming have been important in Turkish society throughout history, there are many proverbs in Turkish about horse, dog, wolf, sheep, weapon, and bravery. In Turkish societies, the family has been given great value, and it has been commemorated with the concepts of homeland, nation, religion, and state, and has been counted among the highest and most sacred values. As a matter of fact, among Turkish proverbs, there are enough family idioms to be a separate research topic (Kurt, 1997). Considering that one of the basic functions of the family is to reproduce and to ensure the continuation of the generation in this way, it is seen that this is emphasized in Turkish proverbs. The proverbs "Either the child is one, or the stove is blind", "There is no chimney in the house without children" emphasize how important the child is in ensuring the continuation of the family and therefore the generation. The child is not only considered as a being that ensures the continuation of the human generation, but also as the foundation and pillar of the family, with the proverbs "Child is the foundation of the house", "Child is the pillar of the house" (Duman, 2008). Proverbs are short, impartial, generalized, require constant observation, give lessons and advice, and guide us, reflect our traditions and customs, are based on folk beliefs, be realistic, contain criticism, satire, and ridicule, are metaphorical and artistic. In terms of carrying a narrative, the memory of Turkish society includes its past, present, and future. In addition to the features of proverbs that express the texture of Turkish society from different perspectives, it is also important for children's education, upbringing, learning, training, etc. It is also very important in terms of reflecting the developmental characteristics. It is extremely important to consider the proverbs, which tell us about the development of the child most shortly and concisely, as a research topic in this respect (Güleç,

2006). Today's studies include the development of the child; It is seen that he focuses on Cognitive, Psychomotor, Social, Emotional, Moral, and Language Development Areas (Yavuzer, 2001; Yörükoğlu, 2003; 1997; Kabadayı, 2005; 2007; 2009). At this point, Cognitive Developmental Domain; thinking, reasoning, and problem-solving ability is the development area where the ability to use language is determined. Psychomotor Development Area; children's self-care, toilet training, dressing, eating, etc. is the ability to coordinate movements and movements. Social Developmental Domain; It is the ability to relate to others and the attitudes and behaviors exhibited in social life. Emotional Developmental Domain; The ability to feel is the development area where emotions such as pain, sadness, joy, anger and these emotions turn into behavior (Atay, 2009). Moral Developmental Field; It is considered as the process of children gaining principles that guide them to evaluate certain behaviors as "right" or "wrong" and enable them to manage their actions (Onur, 1997). Sexual Developmental Domain; It is the developmental period in which children accept their biological gender and gain social roles related to gender (İnanç et al., 2004). Language Developmental Domain; It is the development area where the teaching and teaching of thoughts, feelings, attitudes, beliefs, and value judgments are gained (Atay, 2009). When these areas, which include critical periods in the development of preschool children (Bilgin Aydın, 2003; Ulusoy, 2003; Sargın, 2001), are examined in terms of Proverbs, it is seen that much more attention should be given to them. Teaching proverbs in preschool makes important contributions to children's cognitive, moral, sexual, emotional, social, psychomotor, and language development. As a result of research conducted in the related field, it has been determined that child-themed proverbs form three different categories within the framework of the relationship between the one who says-what is said- about what is said about the child, the proverbs said to the child, the proverbs said from the child's mouth, and the proverbs said about the child (Karadağ, 2013).

The research was conducted to determine which developmental areas of children in the pre-school period are addressed with proverbs and to examine them. In addition, it is to use proverbs more effectively for educational purposes in preschool children and to create an adequate preliminary preparation against proverbs. We try to shed light on the proverbs, which are entrusted to us by our rich cultural heritage, for pre-school teachers in the upbringing of future generations. Therefore, this study aims to analyze the relationship of Turkish Proverbs with the language, social, physical, moral, and cognitive developmental domains of the children based on teachers' views.

## **2. Method**

This section explains the study group of the research, the research method applied, the statistical method used, the processes that the research went through, and how they were evaluated.

### ***2.1. Working group***

The survey developed was applied to a total of 165 pre-service teachers (120), fourth-grade students (45) in Necmettin Erbakan University Ahmet Keleşoğlu Education Faculty Preschool Teaching Department. A literature review on the subject was made in the relevant literature (Par, 2006; Kılıç, 2004; Çobanoğlu, 2004; Albayrak, 2009; Akyalçın, 2012; Aksoy, 1995; Duymaz, 2006; Atalay, 1985), and experts' opinions on the subject were obtained. Proverbs are reviewed. A total of 320 proverbs were obtained. The proverbs in question are grouped according to their developmental domains. It has been submitted to the approval of Turkish, child development, and educational science experts.

### ***2.2. Data collection***

The data of the research were obtained through document analysis, which is one of the qualitative research techniques. Document review "includes the analysis of written materials containing information about the phenomenon or phenomena that are aimed to be researched" (Yıldırım and Şimşek, 2005: 187). Afterward, the Chart of the Effect of Proverbs on the Developmental Area of the Child (CEPDAC) was used to systematically classify the obtained proverbs by the study group and divide them into sub-themes.

### ***2.3. Analyzing Process***

Within the scope of the research, scientific steps were taken to analyze the evaluation process. Sample subject scans were made. The data obtained were presented to the relevant experts. The subject for the research project was determined from among the presented topics. A literature review was conducted on the determined subject. Since the proverbs found are limited in number, the search for proverbs has been expanded more comprehensively from different sources. A total of 320 proverbs about children were obtained. There were 11 groups of questionnaires, including 30 questionnaires each. These 11 groups of questionnaires were applied to sample groups of 15 each. These 11 groups of questionnaires were distributed to groups of 15 each to identify their developmental areas. Eleven groups of 165 people totaled only one group to

review and diagnose the questionnaire. The proverbs obtained were shown to the relevant experts and their approvals were obtained. The 320 proverbs found were grouped into 11 questionnaires, each consisting of 30 proverbs. Two questionnaires were given to four group members and three questionnaires were given to one group member for an application. Individually, all group members applied their existing questionnaires to different sample groups. The questionnaires were applied to the 3rd and 4th-grade preschool teacher candidates. Eight questionnaires were applied to third-grade teacher candidates in groups of 15 each. In each questionnaire, 30 proverbs were included, and they were asked to mark the areas of development they deem appropriate by considering the purpose of the questionnaire, the target to be achieved, and the development area of the proverbs for the individuals. Necessary feedback was given on the incomprehensible points. Names were not taken and private information was not included in the survey. Sampling questionnaires have been successfully implemented. The questionnaires obtained within the scope of the research were checked by the relevant experts and the necessary feedback was received for the next stage. Group heads were assigned by the researcher to carry out the research effectively. The proverbs in the applied questionnaires were grouped according to the developmental areas of the children in which they received the highest scores. Then, the results scanned were brought together and each of them was combined into a single analysis with the guidance of the relevant expert. All proverbs were classified according to the high scores they received as a result of the survey application. In cases where a single proverb gets the same score in several areas of development, the proverb is included in all areas of development where it gets the same score.

After 314 proverbs were rated by cross-group evaluation they were classified according to their developmental areas of children, and each proverb was grouped under the guidance of the relevant expert and explained in tables and statistical analysis. The mean score of each proverb was determined by the raters and they were scrutinized according to the level of importance as “High”, “Middle”, and “Low”.

### **3. Findings and Interpretation**

In this part of the research, the distribution of the proverbs determined to be said for children according to the developmental areas of children according to the opinions of the teachers. The distribution of these proverbs in the social development area, moral development area, language development area, sexual development area, emotional development area, psycho-motor development

area, and cognitive development area of the children was scrutinized. The level of percentage and average distribution was statistically classified and supported with examples.

Table 1. Distribution of proverbs according to *children's developmental domains* according to teachers' opinions

Development Domains	F	%
Social Development	134	% 42
Moral Development	60	% 19
Emotional Development	36	% 12
Cognitive Development	33	% 11
Psycho-motor Development	23	% 7
Language Development	16	% 5
Sexual Development	12	% 4
<b>TOTAL</b>	<b>314</b>	<b>100</b>

In Table 1, the frequency and proportional distribution of the proverbs for children have been classified according to the developmental areas of the children, in line with the opinions of the teacher candidates. Accordingly, 42% of the 314 proverbs found to be said for children are social; 19% are moral; 12% are emotional; 11% are cognitive; 7% are psycho-motor; 5% were found to appeal to their language and 4% to their sexual development.

Table 2. Distribution of proverbs according to the teachers' opinions according to the *Social Development Area* of the children

Levels	<i>f</i>	<i>X</i>	Examples
High-level	429	9.7	<i>The child take the elder as a model.</i> (Çocuk kalkar büyüğe bakar.)
Middle-level	311	7.0	<i>A house with a child is a market; a house without a child is a grave.</i> (Çocuklu ev pazar, çocuksuz ev mezar.)
Low-Level	238	5.4	<i>Abdal does not get tired of the wedding and the children's games.</i> (Abdal düğünden çocuk oyundan usanmaz.)
<b>TOTAL</b>	<b>978</b>		

In Table 2, the level of percentage and average distribution of the proverbs for children according to the social development area of children according to the opinions of the pre-service teachers was statistically classified and supported

with examples. According to this, 44% of 928 proverbs were high level ( $x=9.7$ ); It has been determined that 32% of them were middle level ( $X= 7.0$ ) and 24% were low level ( $X=5.4$ ), addressing the social development area of the children.

Table 3. Distribution of proverbs according to the teachers' opinions according to the *Moral Development Area* of the children

Levels	<i>f</i>	<i>X</i>	Examples
High-level	176	8.8	<i>Adults have the right to have a say the right to drink water belongs primarily to children (Söz büyüğün su küçüğün)</i>
Middle-level	133	6.6	<i>The habit that enters with milk comes out with life. (Sütle giren huy, canla çıkar)</i>
Low-Level	94	4.7	<i>If a child has forty midwives, he will either be deaf or lame. (Bir çocuğun kırk ebesi olursa ya sağır olur ya topal.)</i>
<b>TOTAL</b>	403		

In Table 3, the level of percentage and average distribution of the proverbs for children according to the moral development of children according to the opinions of the pre-service teachers was statistically classified and supported with examples. Accordingly, 44% of 403 proverbs were high level ( $x=8,8$ ); 33% of them were middle level ( $X=6.6$ ) and 23% were low level ( $X=4.7$ ) children addressing the field of moral development.

Table 4. Distribution of proverbs by children's *Emotional Development Area* according to teachers' opinions

Levels	<i>f</i>	<i>X</i>	Examples
High-level	111	9.2	<i>Son is bitter water, neither drink nor pass. (Evlad bir acı su imiş, ne içilir ne geçilir imiş.)</i>
Middle-level	78	6.5	<i>Children are like roses (Çocuk kısmı güle misal.)</i>
Low-Level	56	4.6	<i>No mercy is expected from those who have no children (Evladı olmayandan merhamet beklenmez.)</i>
<b>TOTAL</b>	245		

In Table 4, the level of percentage and average distribution of the proverbs for children according to the emotional development of children according to the opinions of the pre-service teachers was statistically classified and supported with examples. According to this, 45% of 245 proverbs were high level ( $x=9.2$ ); 32% of them were middle level ( $X=6.5$ ) and 23% were low level ( $X=4.6$ ) children, addressing the area of emotional development.

Table 5. Distribution of proverbs by children's *Cognitive Development Area* according to teachers' opinions

Levels	<i>f</i>	<i>X</i>	Examples
High-level	91	8.2	<i>It's like he first became an elder and then a child.</i> ( <i>Büyümüşte küçülmüş.</i> )
Middle-level	64	5.8	<i>Sherbet is given according to the vein</i> ( <i>Demirine göre su verilir.</i> )
Low-Level	47	4.2	<i>A child cannot be deceived with dried mulberry</i> ( <i>Dut kurusu ile çocuk aldatılmaz</i> )
<b>TOTAL</b>	202		

In Table 5, the level of percentage and average distribution of the proverbs for children according to the cognitive development of children according to the opinions of the pre-service teachers was statistically classified and supported with examples. Accordingly, out of 202 proverbs, 45% of them were high level ( $x=8.2$ ); 32% of them were middle level ( $X=5.8$ ) and 23% were low level ( $X=4.2$ ), addressing the cognitive development area.

Table 6. Distribution of proverbs by *psycho-motor development area* of children according to teachers' opinions

Levels	<i>f</i>	<i>X</i>	Examples
High-level	73	6.6	<i>A foal that does not play is not a horse.</i> ( <i>Oynamayan tay at olmaz</i> )
Middle-level	42	3.8	<i>The boy who will become a man is evident from his step.</i> ( <i>Adam olacak çocuk adımından belli olur.</i> )
Low-Level	29	2.6	<i>An orphan cuts his navel.</i> ( <i>Öksüz çocuk göbeğini kendi keser.</i> )
<b>TOTAL</b>	144		

In Table 6, the percentage and average distribution of the proverbs for children according to the psycho-motor development area of the children is statistically classified according to the opinions of the pre-service teachers and supported with examples. Accordingly, out of 144 proverbs, 51% were high level ( $x=6.6$ ); It has been determined that 29% of them were middle level ( $X=3.8$ ) and 20% were low level ( $X=2.6$ ) children addressing the psycho-motor development area.

Table 7. Distribution of proverbs by *language development area* of children according to teachers' opinions

Levels	<i>f</i>	<i>X</i>	Examples
High-level	53	8.8	<i>Baby says Pope for the bread and bua the water. (Ekmeğe papa, suya bua diyor bebecik)</i>
Middle-level	29	5.8	<i>get the news from the boy, go with a swell (çocuktan al haberi, git kabarı kabarı)</i>
Low-Level	16	3.2	<i>There is no backbiting where there is a child. (Çocuğun olduğu yerde gıybet olmaz.)</i>
<b>TOTAL</b>	98		

In Table 7, the percentage and average distribution of the proverbs for children according to the language development area of the children is statistically classified according to the opinions of the teacher candidates and supported with examples. Accordingly, out of 98 proverbs, 54% were high level ( $x=8,8$ ); 29% of them were middle level ( $X=5.8$ ) and 16% of them were low level ( $X=3.2$ ).

Table 8. Distribution of proverbs according to children's *sexual development area* according to teachers' opinions

Levels	<i>f</i>	<i>X</i>	Examples
High-level	27	6.7	<i>The noise of the great tree, the bough, and the happy house, with its offspring. (Ulu ağacın gürültüsü dal ile mutlu evin yakışığı döl ile)</i>
Middle-level	24	6.0	<i>A girl is like a glass plate. (Kız çocuğu cam tabak)</i>
Low-Level	16	4.0	<i>The stone of the field, the hair of the girl, the head of the cow is important (Tarlanın taşlısı, kızın saçlısı, ineğin başlısı.)</i>
<b>TOTAL</b>	67		

In Table 8, the percentage and average distribution of the proverbs for children according to the sexual development of children according to the opinions of the teacher candidates is statistically classified and supported with examples. According to this, 40% of 67 proverbs were high level ( $x=6.7$ ); 36% of them were middle level ( $X=6.0$ ) and 24% of them were low level ( $X=4.0$ ).

#### **4. Discussion and Conclusion**

In this study, proverbs, which are folklore and literary products, are examined in terms of the child's soul, language, morality, gender, socio-cultural, etc. dealt with concerning their developmental areas. The classification of these folk literature products according to the growth and development stages of children, their emotional-thought competencies, their tastes and habits, and their use as children's literature material with scientific methods depend on the joint work of language educators, pedagogues, pedagogues and psychologists. In this study, firstly, after examining the definition, features, qualities of proverbs and their contribution to the development of the children, a qualitative content analysis of 320 sample proverbs obtained by meta-analysis method was made. Later, the contributions of these proverbs to the child's language, moral, social, psycho-motor, sexual, emotional, and cognitive development areas were examined by dividing them into sub-themes. Accordingly, 42% of the 314 proverbs found to be said for children are social; 19% are moral; 12% are emotional; 11% are cognitive; 7% are psycho-motor; 5% were found to appeal to their language and 4% to their sexual development. Finally, the activities of these proverbs in sub-themes including language, moral, social, psycho-motor, sexual, emotional, and cognitive development areas of children could be classified in the context of high-level, middle-level, and low-level, statistically and proportionally and supported by examples. It is understood that Turkish proverbs, which reflect the views of Turkish society on children and education, have valuable information about children and their education, consistent with the results of today's education science, by drawing lessons from their experiences, based on the observations and experiences of Turkish societies (Duman, 2008). After that, studies on proverbs can be put into the service of Turkish society as a cultural treasure by making a meta-analysis of larger and historical documents. These proverbs can be the subject of an intercultural study, including the countries of the Turkic world.

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## CHAPTER 2

# STUDYING CLASSROOM DISCOURSE IN THE EFL CLASSROOM

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### 1. Introduction

In social constructivist approaches, learning environments that both engage students and improve their learning are of significance. According to Cazden (2001), the analysis of discourse and/or language is one of the ways of measuring the effectiveness of such environments as it will reveal the complex relationship between language, interaction and learning (Walsh, 2011). Moreover, analyzing classroom interaction/discourse could give important clues related to how to improve teaching and learning. Discourse refers to both written and spoken texts that are formed in a specific context and for a reason (Walsh, 2013) and its analysis is concerned with the analysis of these texts focusing on their context and the reasons why they are produced. Discourse analysis within the scope of education enables us to understand how ‘knowledge is socially constructed by teachers and students in the classrooms and other instructional settings’ (Inan-Karagul & Yuksel, 2015). In this context, the analysis of classroom discourse in the English as a Foreign Language (EFL) context has attracted attention recently. Classroom discourse refers to ‘the language, communication, practices, texts and social structures that makeup, as well as, influence, teaching and learning’ (Jenks, 2021, p.5). In the EFL context, everything that takes place in the classroom necessitates the use of language and students reach new pieces of information, develop new skills, and handle communication breakdowns. For this reason, understanding classroom discourse is extremely important as we teach discourse with the help of the discourse we form with our learners

(Walsh, 2011), and this makes language classrooms unique venues for discourse analysis.

## **2. Approaches to the study of classroom discourse**

Walsh (2013) contends that communication in the classroom is very complex and it has a very central role in all kinds of classroom activities. Therefore, analyzing the patterns of communication, identifying the roles of multiple participants and foci and how language is used in different parts of the language lessons and by learners and teachers are the main areas of concern in classroom discourse research. Since classroom discourse is under the influence of many different disciplines, a variety of different theoretical frameworks and methodologies could be utilized (Jenks, 2021). The most commonly used ones are given below. As these terms are sometimes used interchangeably and they are sometimes found to be confusing, it might be necessary to explain these terms and the major differences between them.

### **2.1. Interaction analysis**

According to Walsh (2013), in interaction analysis, researchers make use of observation instruments or coding systems to record what they see or think is happening during the observation they make. Different kinds of coding systems are used to be able to investigate the patterns of communication occurring in the classroom. According to McKay (2008), researchers use these coding systems to:

- identify the type of interaction promoting L2 learning
- help teachers determine whether they should use communication patterns that are recommended as they are found to be effective
- train teacher trainees to benefit from different communication patterns in the classroom (p.90).

In these observation systems, observers tick boxes, make marks, etc. and they do it at regular intervals. It is stated that there are many different coding schemes and they vary depending upon their aims. One of the most popular coding schemes is Communicative Orientation to Language Teaching (COLT), which was developed by Allen, Frochlich & Spada (1984) as a part of a project in Canada. They aimed to identify the impact of types of instruction on learning outcomes and such a coding scheme was required so that the researchers could use it for the observation of different second language (L2) classrooms. The details of COLT are given below:

Table 1. Details of COLT

<b>COLT</b>	
<b>PART A (classroom activities)</b>	<b>PART B (communicative features of the exchange)</b>
<b>Activity Type</b> (drills, singing, discussion)	<b>Use of the TL</b> (the extent of TL use)
<b>Participation organization</b> (whole class, group work, individual work)	<b>Information gap</b> (whether there is genuine communication or not)
<b>Content</b> (focus is on classroom management, the focus is on explicit language), (topic is controlled by the teacher, by the student or shared)	<b>Sustained speech</b> (whether the speaker is engaged in extended discourse)
<b>Modality</b> (listening, speaking, reading, writing, or a combination)	<b>Reaction to code or message</b> (whether the focus is on meaning or form)
<b>Materials</b> (material type i.e. text, audio, visual; the text's purpose i.e. pedagogic, semi-pedagogic; material use i.e. highly-controlled, semi-controlled)	<b>Incorporation of preceding utterances</b> (no incorporation, elaboration, repetition, paraphrasing, comment)
	<b>Discourse initiation</b> (teacher initiated or student initiated)
	<b>Relative restriction of the linguistic form</b> (restricted language use i.e. one form of language is expected, limited restriction, unrestricted use)

*Adapted from McKay (2008)*

This coding scheme was found to be beneficial as Communicative Language Teaching (CLT) was supported widely in the world; however, it was later criticized as it could not capture the complex nature of the classroom communication.

## 2.2. Conversation analysis

Conversation analysis (CA) is concerned with ‘the examination of naturally occurring talk to understand what is being accomplished by the speakers’ (McKay, 2008, p. 101). It has got important links with sociology, not linguistics or applied linguistics and it appeared as a result of a need to study ‘ordinary conversation as social action’ (Walsh, 2013). The philosophy of CA claims the constant changes in social contexts and they’re being shaped by the participants

with the help of their use of language. Lazaraton (2002, p. 37-38) lists the principles of CA in terms of methodology in the following way:

- using authentic, recorded data, which are carefully described
- using ‘unmotivated looking’ rather than pre-stated research questions
- employing the ‘turn’ as the unit of analysis
- analyzing single cases, deviant cases, and collections thereof
- disregarding ethnographic and demographic particulars of the context and participants
- eschewing the coding and quantification of data.

When it comes to its applicability to the L2 classroom context, it is possible to say that it has relevance because of the participants’ ‘making sense of the interaction and also taking part in it’ (Walsh, 2013). During classroom talk, there is the existence of many participants, turn-taking and smooth transitions most of the time. With the significant call made by Firth & Wagner (1997) towards the contextual and interactional features of language use and also towards emphasizing the role of participants more than the cognitive processes, a new field known as ‘CA-SLA or CA-for-SLA: Conversation Analysis for Second Language Acquisition’ emerged.

### **2.3. Discourse analysis**

Discourse analysis (DA) is defined as ‘the analysis of written or spoken texts produced in a particular context or for a specific purpose’ (Walsh, 2013, p.23). In the case of spoken texts, how interlocutors construct meanings together and how they establish mutual understanding is what it focuses on. In the case of the study of the discourse of classrooms, how certain discourse features such as turn sequences are formed is an important focus as well. Jenks (2021) discusses DA as a specific approach analyzing ‘functions of language, sentences and utterances, reference, speech acts’ and many other issues (p.67).

## **3. How to Do Classroom Discourse Analysis (CDA)**

Collecting classroom data and its analysis is a tedious process as many things are happening all at once. Jenks (2021) lists the practical considerations in the following way:

- a. **Access:** It is related to some specific factors i.e. whether you have permission to collect data or not, for how long you will be able to collect your data, etc. Such factors will determine whether you will be able to conduct your research and the content of your research.

- b. **Time:** Depending upon the amount of time to be devoted, the type of analysis will differ. While a short period (i.e. 2 months) will not lead to a detailed analysis, a longer period will make it possible to take into consideration many different aspects of the discourse for further analysis.
- c. **Technology:** For both recording and transcribing the classroom discourse, there are multiple possibilities. For recording, depending on the type of data needed, either a voice recorder or a camera could be preferred. For transcription, on the other hand, while many researchers do it by hand, recent technology presents its user's different possibilities such as the software that converts auditory data into a written version.
- d. **Ethics:** Regardless of the type of research, ethics involves whether the participants' consent has been obtained, whether the researchers will reveal the identities of the participants, and surely the approval of an ethics committee.

After considering the above-mentioned factors, it is necessary to have a closer look at the process of conducting classroom discourse analysis research. Yuksel & Unaldi (2013) summarize the process of classroom discourse in the following way: before data collection, during data collection, after data collection. *Before the data collection process*, it is necessary to determine the research questions, for which accurate wording is a must. The selected research questions will also determine the research methodology to be utilized in the research. Choosing an appropriate research site and obtaining permission from the administration are the other important steps.

*During data collection*, different methodologies are employed depending on the aim of the research. For recording, different equipment and software could be used by the researchers. The questions that should be asked are listed as:

- Is it only the spoken communication that will be recorded?
- Are people's gestures equally important?
- Are online interactions investigated? (Jenks, 2021)

Based on the questions above, audio recordings, video recordings or recordings on-line spaces are the possibilities. Microphones are preferred for audio-recordings in most cases. However, with the common use of mobile phones, they have become another possible option for recording auditory data. Surely, the quality of recording and whether it is going to be appropriate for transcribing afterward are the other important issues. If, on the other hand, visual data is also needed, a camera might be a better alternative.

Another important point is how much data is needed for a research study. According to Jenks (2021), depending upon the methodological approach, analytic focus, institutional expectations, etc. should also be taken into consideration. Jenks (2021, p.31) explains the possible data collection plan as the following:

Table 2. Data collection plan and expected timeline

<b>Data collection plan</b>	<b>Transcription time</b>	<b>Ideal project</b>
1 hour-long recorded data	1 day of transcribing	course assignment
5 hours-long recorded data	5 days of transcribing	undergraduate thesis
10 hours-long recorded data	10 days of transcribing	MA thesis
15 hours-long recorded data	15 days of transcribing	PhD thesis

As can be seen in Table 2 above, depending upon how detailed a project is going to be, the amount of data needed and the expected transcription time vary.

*After data collection*, some other important points should be taken into consideration. This part includes the main stages of discourse analysis. Data transcription, data management and reduction, data analysis, and interrater reliability are included in this part.

### **3.1. Data Transcription**

Even though it seems to be as simple as listening to the recording and writing down everything one hears, it requires extra attention as spoken language and written language are quite different from each other. According to McKay (2008), the spoken language includes a great amount of meaning with the help of gestures, intonation, etc. and it is impossible to capture it in written form. For this reason, transcripts of spoken language are not good sources for discourse analysis. Instead, recordings themselves should be taken into consideration for analysis. Different coding systems are used to be able to reveal some of the features of spoken interaction. One of the commonly used systems is exemplified below McKay (2008):

Table 3. Sample data transcription symbols

Symbol	What it means
[	beginning of an overlapping speech
]	the ending of an overlapping speech
(.)	a pause less than a second
word	underlining of a word shows stress coming from pitch or loudness
:	a lengthened sound or syllable
.	falling intonation
,	continuing intonation
?	rising intonation
()	inaudible sound
(( ))	transcriber's description of a scenery

### 3.2. Data management and reduction

Data management includes ordering or 'tidying up' (Ellis & Barkhuizen, 2005) the collected data. The discourse analyst copies, labels and indexes it; they also file and store the data in a safe place. Data reduction, on the other hand, makes the obtained data more manageable through such techniques as summarizing, paraphrasing, focusing, etc, so that a large amount of data turns into a smaller and manageable amount (Ellis & Barkhuizen, 2005). In this way, the researcher can work with the data more easily and can easily identify the possible themes and patterns in a shorter period.

### 3.3. Data analysis

Once the transcription process is over, it is time to analyze it. Qualitative data is defined as 'rich, thick or deep' (Ellis & Barkhuizen, 2005, p.253); for this reason, its analysis is rather detailed and time consuming. In order to carry out qualitative analysis, huge amounts of data should be reduced so as to turn them into manageable units for analysis. The technique that discourse analysts use for this is called '*coding*'. In other words, as Miles & Huberman (1994, p.56) suggests, '*coding is analysis*'. With the help of coding, data is organized into themes and categories and further analysis could be conducted and interpretations or conclusions are drawn (Ellis & Barkhuizen, 2005). Two different approaches are suggested by Ellis & Barkhuizen (2005) for coding and analyzing the transcribed data, which are 'deductive' and 'inductive' approaches. If the analysis begins with some pre-determined codes, this is called

‘top-down deductive coding’. However, in ‘bottom-up inductive coding’, the codes emerge as the researchers work with the data. From time to time, both are used simultaneously when the researchers have some pre-determined codes which are modified after the data examination.

### ***3.4. Interrater reliability***

After the data is analyzed, ensuring the reliability of the findings is a must while analyzing classroom discourse. Interrater reliability requires an external rater that will agree to code a specific portion of the whole data. If the external rater is familiar with the constructs investigated, the process will take a shorter time. If not, a training manual could be prepared including the definitions and the examples of the constructs by the researcher(s). When the external coder codes the data, the obtained codes are compared and contrasted. Miles & Huberman (1994) suggest calculating interrater reliability in the following way:

$$\text{reliability} = \frac{\text{number of agreements}}{\text{number of agreements} + \text{disagreements}}$$

Alternatively, interrater reliability could be calculated with the help of the SPSS programme through Cohen’s Cappa value. After the calculations are over, raters discuss the parts of data they have coded and then disagreements are resolved.

## **4. Basic research tendencies**

Different discourse constructs related to the interaction between teachers and students have been investigated up to now. The most commonly investigated discourse constructs include corrective feedback, teacher questions, and code-switching/the use of L1.

### ***4.1. Corrective feedback***

According to Van Lier (1988), correcting students’ errors is a common move taking place in many language classrooms. Corrective feedback (CF) is defined as ‘any indication to the learner that their use of target language is incorrect’ (Lightbown & Spada, 2013, p. 140). Later on, the types of corrective feedback were categorized in their seminal study by Lyster & Ranta (1997), in which they observed 10-11-year old students in a Canadian ESL context. The categories they came up with are: recast, metalinguistic feedback, elicitation, repetition, clarification request, and explicit correction. Previous research investigated

which of these CF types are the most frequently used ones and which of them lead to student uptake during classroom communication.

#### **4.2. Teacher questions**

Regardless of the course content, teacher questions are an indispensable part of classrooms (Inan-Karagul & Yuksel, 2015). In the language classrooms as well, teacher questions are considered to have a role in facilitating students' TL production or students' correct and meaningful responses (Chaudron, 1988). Previous research led to different categorizations of teacher questions (Epistemic vs. Echoic questions by Long & Sato, 1984; Authentic vs. Test questions by Nystrand, 1997, etc.). It was also investigated whether one type of question leads to more communicative classrooms in which students give longer answers/ answers including unknown information.

#### **4.3. Code-switching/the use of L1**

Code-switching refers to switching between two languages in the classroom. It is suggested that the choice of language during the interaction in the classroom depends on the task and activity types (Simon, 2001). In the related literature, functions of code-switching are approached either from a student perspective (equivalence, floor-holding, reiteration or conflict control) (Sert, 2005), or from teacher perspective (topic switch, affective functions, and repetitive functions) (Mattsson & Burenhult-Mattsson, 1999).

### **5. Conclusion**

This chapter focused on the basics of classroom discourse analysis, which is a field that has attracted a lot of attention recently and it also attempted to clarify the confusing terms that might lead to some misunderstandings and also basic research tendencies in the related literature. Since the term 'discourse analysis' is a multidimensional concept, it is used differently in different contexts. For this reason, its analysis might include some additional steps depending upon the requirements of the related context and also the constructs it handles might vary following the researcher's aim.

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## CHAPTER 3

# COMPARISON OF TURKEY'S EDUCATION BUDGET WITH OECD COUNTRIES

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### 1. Introduction

In today's information technology era, the phenomenon of globalization has a very important place. Intercultural communication is quite bigshot factor in globalization in the 21st century, when change and development have been made worldwide beyond the local, and like in all fields, education has notably taken its share from the globalization. Globalization movements have affected education systemically, politically, and economically and tried to change, and transform the lifelong principle and curricula (Özdem, 2007: 131). According to Altbach, comparative education is an interdisciplinary field that examines education in an intercultural context, and this education is not limited to schools or formal educational institutions (1991). Comparative examination of education gives a chance on self-evaluation and self-criticism in the lane where the education system of each country is located, it provides an opportunity to realize if it needs some changes or whether existing applications provide global functionality. It reveals what is possible by producing alternatives to the conditions at hand, the criteria that evaluate the performance of education systems, the results of the current roadmap by looking at the experiences in different countries, and it has a supportive and instructive role in the development of educational reform plans (Phillips and Schweisfurth, 2014: 17). From this perspective, the programs and policies of countries whose education systems are more advanced and developed should be utilized in developing and arranging

new programs and policies; in order to catch up with the pace of the developing world, one should be open to innovations (Saribaş & Babadağ, 2015).

In the 11th Development Plan covering the years 2019-2023, education aims to provide all individuals with access to an inclusive and qualified education and lifelong learning opportunities, with improved thinking, perception, and problem-solving skills, with a sense of self-confidence and responsibility, entrepreneurship and innovation, raising productive and happy individuals who have internalized democratic values and national culture, are open to sharing and communication, have strong artistic and aesthetic feelings, and are prone to the use of technology (Ministry of Development, 2018: 135). Comparison of education will contribute positively to both developments by achieving development goals and attempts to keep up with the globalizing world. In this sense, PISA (Program for International Student Assessment) research is a comprehensive measurement tool for comparing and evaluating education at an international level and determining new roadmaps by taking advantage of the intercultural and intercultural benefits of comparative education nationally. This research is a study that was started to be carried out for the first time in 2000 by the OECD (Organization for Economic Cooperation and Development), which was established in 1948 and was applied every 3 years, and Turkey was included in this research for the first time in 2003 (MEB, 2021).

The Ministry of National Education (MoNE) (2018, a) explains the purpose of PISA is to evaluate the “literacy” skills of 15-year-old students who continue their formal education at the end of compulsory education, to put the theoretical knowledge they have learned within the scope of the curriculum into practice, to accept and evaluate the information, in short. The information provided by the PISA research offers a wide range of opportunities to evaluate students’ readiness for real life on a country-by-country basis (Çelen et al., 2011). The results it measures are not only limited to the literacy levels of individuals, but also the budget, teacher, compulsory education period, and the age of onset of reading, of the education systems of the countries. It also provides the opportunity to examine factors such as teacher salaries in a multidimensional way and to make a ranking among these countries, and PISA also provides important findings of the education system of countries with these aspects and has become one of the most comprehensive studies in terms of education comparison. In this context, it is aimed to compare the education budget in Turkey with OECD countries with the help of PISA results. It is an undeniable fact that one of the most influential factors in the quality education targeted in the 11th Development Plan is the budget. In this context, it is aimed to compare the education budget in Turkey with OECD countries with the help of PISA results.

## 2. Education Budget

Fundamentally, the budget or financing can be considered as a set of income and expenses planned for a job to be done. For example, there is a factory, and it is desired to examine the economic values of this factory in the next year. If this factory's employee salaries, physical expenses, all monetary expenses such as raw material input, and all revenues obtained as a result of production are calculated, the factory's budget for that year is calculated. In the education budget, on the other hand, expenses are items such as teacher or staff salaries, school construction or material supply, and financial expenses of the facilities provided for students. Income of education can be associated with the contribution of the individual and society to the country's economy through education in the following years. The budget of education is directly related to the achievement of educational progress goals (Ertürk, 2020). The budget allocated to education, or in other words, the financing of education, is one of the best investments for the development of the country because each individual trained with this investment is a soldier who will help the country's economy and development in the coming years. The concepts of education and economy are in interaction with each other, because spending on education will bring well-equipped individuals to the society in the long run, and it will enable the economy to develop in the context of the quality of the workforce. OECD (2019) explains the purpose of investment in education as the main factors such as increasing economic growth, productivity, personal and social development, and reducing social inequality, among other factors. In the study of Abdioğlu and Albayrak (2018), the 1% increase in the gross domestic product will increase the unemployment rate among the youth between the ages of 15-24 by 0.48%

In a developed economy, the share allocated to education will be as large as for other areas, which can be interpreted as better education because education is a public good that increases the productivity of economic and political institutions, thereby accelerating the scientific progress on which economic growth depends (Schultz, 1988). The level of development of countries is closely proportional to their education expenditures. Quantitative and qualitative outputs of a country in education depend on the material resources of education and the qualitative and quantitative inputs provided by these material resources, its technology, and the way and degree of fulfilling the function of the education system (Güngör and Göksu, 2013). In addition to increasing the share of education, the gross domestic product should also increase.

It can be said that Turkey is unsuccessful in terms of annual expenditure per student. According to 2016 data, the OECD average is 9,372 dollars in

spending at all levels of education; Luxembourg made the most investment in this field with 20,323 dollars, but Turkey ranks second from the last among OECD countries with 5,278 dollars, surpassing only Mexico. The ratio of primary, secondary, and high school expenditures to gross domestic product is 3.5% in Turkey, which is at the same rate as the OECD average. New Zealand and Israel lead this lane. In this lane, Turkey has surpassed countries that are below the OECD average, such as Italy, Japan, and the Czech Republic. The fact that the share allocated from the gross domestic product is in the OECD average in percent, but Turkey's being in the last place in the money spent in dollars can be associated with the general state of the country's economy. Another interpretation is that "the share in GDP may be due to the separation of different branches other than education" (Kartal and Özlem, 2021: 47). A budget of 2.69% was allocated to education in 2018, 2.56% in 2019, and 2.57% in 2020. In total, a share of 4.4% in the sectoral distribution of the gross domestic product was given in 2019 and 4.1% in 2020; Just ahead of the education sector is the construction sector, with a share of 5.4% for 2019 and 5.2% for 2020 (Turkish Statistical Institute, [TUIK], 2021). In both years (2019-2020), the manufacturing industry sector took the largest share. It is quite understandable for a country to allocate the largest share to production, because an increase in production will mean an increase in the amount of gross domestic product, and it will accelerate the increase of all other sectors' material aspects, thus also the qualitative and quantitative characteristics within themselves. However, the real estate activities sector took a rate of 6.5% in 2019 and 6.3% in 2020. These results show that financial resources are given to education, but more to real estate activities.

In Turkey, a good number of resources are spent on education, but financial resources are insufficient based on the general economy. One of the most important issues to focus on in education economics is the effective evaluation of existing resources (Uğur, 2009). To increase the quality of education, it is necessary to manage the available resources at the most effective level and to strive to increase the existing financial potential, because if a sufficient budget is not allocated for education, it will be difficult to find qualified and sufficient personnel in the production sector in the coming years, as well as the development and progress in this sector. It will inevitably stop and then regress. The Ministry of National Education's 2023 Education Vision, developed within the framework of the 11th Development Plan covering the years 2019-2023, is considering going local in terms of budget. According to this vision, education expenditures will become wider with revolving funds and solutions will be

developed by the region for regional deficiencies or needs (MEB, 2018, b). In this respect, it is possible to say that budget planning in education will be done locally. However, these local investments and aids may not be enough to provide a permanent financial contribution to education because education needs a certain budget every year and this locality does not guarantee continuity when making a budget. Although the monetary resource is not the most impressive and important element in education, it is the most important criterion in the creation and provision of all educational inputs (Başaran, 2006: 443). Inputs should also be able to promise quality for the outputs of education, which is an open system.

### **3. Literacy**

What is expected from a literate individual is not a technical knowledge requirement such as being able to read the texts in the book or write an article that he sees, but the ability of the individual to access new information by actively using his/her skills. Literacy is the use of printed information, reaching set goals, and developing one's knowledge and potential (OECD, 2000). The point emphasized here is not the availability of knowledge, but the ability to put it into practice or to be able to be put into practice, and the ability of the student to use his knowledge in his daily life. Literacy skills were examined under 3 sub-titles; prose, document, and quantitative, as well as rated 1-5 from lowest to highest. The OECD is an organization that came together for economic purposes and attributes the reasons for the need to develop economic knowledge skills to globalization, technological change, change in employment, and change in work organization (OECD, 2000). Since education is an important factor for individuals to choose or be selected according to their job and professional qualifications, it is usual for the OECD, combined with economic awareness, to focus on education. PISA applied for this purpose and the resulting reports show the degree of performance gap of students across education systems of countries (Schleicher, 2019). In PISA, one of the 3 basic areas is determined as a weighted area by changing it every year. These areas are (1) reading skills, (2) mathematical literacy and (3) science literacy.

#### **3.1. Reading Skills**

'Reading' is not reading in the technical sense, it is the individual's ability to create, maintain, expand and reflect continuous and discontinuous texts inside and outside the school. Reading skills are a set of ongoing knowledge, skills

and strategies that individuals create through lifelong interaction and different contexts (OECD, 2019). With this explanation, the OECD draws attention to both longevity and interaction of this skill. At the same time, it is emphasized not only to understand the knowledge, but also to use it practically and functionally. OECD associates the ability to apply knowledge to being an active part of the society they live in, assuming that individuals in the age group of 15 will participate in business life after academic development or as soon as they complete compulsory education.

Turkey's score in reading skills is 466 and it is Level 2. In this field, whose OECD average is 453, China got the highest score with 555 points. Among the 79 countries participating in the study, Turkey is ranked 40th. The impact of rapidly advancing technology has also emerged sharply in students in the 15-year-old age group. From 2009 to 2018, students' tendencies and use of internet resources instead of printed publications such as newspapers and magazines increased significantly. The rate of students who said "I only read when I have to" is based on 50%. However, reading should be based on the desire for self-development and realization rather than being an activity done out of necessity. Although reading skills have increased by 38 points compared to the previous PISA, it should not be forgotten that 475 points were obtained in PISA in 2012 and this score is Turkey's record.

### ***3.2. Mathematics Literacy***

This concept is defined as the ability of individuals to use and benefit from their mathematical competences to meet future challenges, and to adapt students' capacities to analyze, draw conclusions and contact ideas, adapt mathematical problems into daily life situations and solve these problems (OECD, 1999). It is at the forefront that students can use mathematical knowledge in daily life and associate problems with daily life.

Turkey is in the 2nd level with 454 points in mathematics performance, its ranking is 42 and the average score is 459. China is the country that placed at the top with 591 points. This score of Turkey is its own record as of the date of participation in PISA and there is an increase of 34 points compared to PISA in 2015.

### ***3.3. Science Literacy***

The ability to make reasonable and unbiased inferences from clues and information, to criticize claims from clues, and to distinguish an idea from a clue-based one is a very important life skill for young people. Science comes

into play at this point and tests ideas and theses in a rational framework despite the clues in the world. Future scientific studies can be advanced by the development of the ability to do science. In addition to scientific knowledge, the processes that proceed with this knowledge are very vital for science literacy, so using scientific processes requires understanding the science subject area. Man-made changes are planned and unplanned changes, adaptations, of the natural world for human purposes (OECD, 1999). This change, and in some cases, the development is the product of the studies revealed by science and skill. Thanks to science, human beings grasp what they need to change and preserve in the world, analyze them and make inferences in this direction. The dominance of the effort to do better makes science literacy essential for human beings.

In terms of science literacy performance, Turkey got 468 points and is at Level 2, ranking 39th. China again tops the list with 590 points, with OECD's average score of 458. In the field of science literacy, Turkey broke its own PISA record and increased by 43 points compared to the previous year. On the other hand, countries on the top have been China and Singapore who have been talked about their names for their education and economy for years.

#### **4. Conclusion**

In terms of budget, it can be said that Turkey has failed in the OECD overall because Turkey has been the country that allocates the least amount of money to its students after Mexico. In the 2023 Vision, Ministry of National Education states that some material will be provided voluntarily for the education budget, and should create net expense estimates and reports for education and training, regardless of circumstance or volunteerism. The share of the gross domestic product allocated to education should be increased, and the sectoral distribution should be fair.

The promising point for Turkey is that in the PISA 2018 application, in which 79 countries and more than 600,000 students participated, Turkey was one of the three countries that made progress in all three areas (MEB; 2018, a). Turkey is at the 2nd level in reading skills and this means that Turkey is at the degree "which students have acquired the technical skills to read, and can use reading for learning." (Schleicher, 2019: 17). Just as in reading, students in Turkey have shown a performance at the 2nd level in both science and mathematics. When the results have been investigated, China has been seen on the top of each category. It is very meaningful because China makes world's mark for its economy. A good economy brings good education spends if the sources are managed in an effective way. Good economy comes from good

education background as students are future workers for a country. If investment on education is complemented reasonably, it is expected to see more developed country in terms of economy and education.

According to 2015 PISA results, it has been shown that more successful countries have tend to spend much more money on each student's education (Aydın et. al., 2018). The result is nearly same in 2019. It can't be neglected that Turkey have progressed in terms of skills from 2003 when its first attainment to PISA to today. In 2003, OECD average of money spent per student was 6.361 dollars and Turkey spent nearly half of that amount and ranged as the country which spent the least money for its students (OECD, 2003). The result was not surprising that Turkey was the least successful country regarding mathematics literacy. But today, although it has located somewhere under the list which shows quantity and ranks of countries in terms of money spent per student again, the students are not at the worst levels, they have been more successful than they were. If economical situation and education budget have been developed, the availability to sources can become easier, the sufficient and efficient numbers of teacher can be set on the area, students' monetary needs can be responded.

As it is known, education is today's sector that will shape the economy in the coming years. To increase the quality of education, it is necessary to manage the available resources at an optimum level and to make an effort to increase the existing financial potential, because education is the sector that trains good personnel for the production sector in terms of quality and quantity. The education sector, which holds the steering wheel, should be viewed as the future development of the country. Education is the top priority for both raising individuals who are open to innovations who have kept up with the mechanized and digitalized world, and for increasing social order and welfare. System and education concepts should be made more effective with strong economic investment, and efforts should be made to save generations rather than solutions that will save the day.

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## CHAPTER 4

# THE EFFECT OF BRAINSTORMING ON SUCCESS AND CONCEPT LEARNING IN SCIENCE LESSON\*

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### 1. Introduction

Different teaching and learning approaches, strategies and methods are used in the teaching and learning environment to ensure meaningful and permanent learning in science lessons. Teaching and learning techniques are the driving forces of this approach, strategies and methods. One of these techniques is brainstorming. The concept of brainstorming was first included in the medical dictionary prepared by George Gould in England in 1894 with the definition of “sometimes severe and sudden sequencing event or temporary mental illness seizure developing due to mental illness”. In the following years, English writers used this term in this sense. This concept took part in the defenses in the USA in the 1907-1920s with the thought of a sudden explosion of mental illness, a brainstorming that caused the defendant to seek revenge during the murder trials. In the USA in the late 1920s this term was partially used to mean a mental activity that led to a brilliant idea. This has developed its modern meaning on problem-solving ways and generating ideas in

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the form of more intense and often relaxed group discussion. This last meaning was used until 1940. It was used to mean group creativity, the most used today in Britain during World War II. (Quinion, 2004). This technique, which was used to find a name for a new product for the first time, was later applied as a teaching technique in various fields of education (Nakiboğlu & Altıparmak, 2002). For brainstorming, which is widely used in learning-teaching processes today, Wood (1970) states that this technique is a problem-solving technique that is successfully applied in fields such as business, government, industry and a small amount in education (p:160).

Some definitions in the literature are as follows: Rawlinson (1995) expresses brainstorming as one of the techniques to get many ideas from a group of people in a short time. Brainstorming is a thought session in which many ideas arise about the issues a group is dealing with. Çavuş (2004) defines brainstorming as the task of generating many ideas in a short time by a group to find solutions to problems. Expressing the meaning of brainstorming as a brilliant idea and a violent explosion of excitement, Şahin (2005) cites the definition of brainstorming as follows: It is a creative technique used to solve a problem, make decisions and generate ideas and ideas through imagination (Demirel, 1995); it is an activity in which teaching-oriented discussion skills are learned in order to develop, encourage and encourage creativity (Orlich et al., 1990); and to gain thoughts and ideas; students of an open-minded group should produce as many ideas as possible without worrying about whether their thoughts about a subject, event or problem situation are logical (Saban, 2000); this is an idea and it refers to a technique based on presenting options (Özden, 2003).

According to these definitions; brainstorming can be expressed as a technique to reach creative ideas as a result of group exchange of ideas without worrying about being criticized or judged. Brainstorming is a group where all individuals can produce as many as they can produce on a problem that needs to be solved in a group, and without worrying about being evaluated, positively or negatively on other ideas, remaining hidden without hesitation, revealing the hidden ideas, combining and developing the presented ideas, creative and original it is an idea gymnastics done by blowing an abstract storm in the brain where ideas are produced and individuals have the freedom to absurd.

Özer (1996) in his article on brainstorming; he states that in order to raise individuals who can think alternatively, are creative and can solve problems, instead of an education system that teaches certain subjects and withdraws and gives information in the form of a “pill”, there is a need for teaching programs

that include developmental teaching techniques. Brainstorming technique is one of the techniques that can be used to achieve this goal in education and teaching activities.

It is a teaching technique made in the form of solving a problem that needs to be solved within a certain period of time through participatory education (Gürdal, Çağlar & Şahin, 2001). Brainstorming is a creative technique used to solve a problem and generate thoughts and ideas through imagination. It is one of the techniques that support the problem solving method. Brainstorming can also be applied by addressing a topic with negative questions. This is called reverse brainstorming (Kaptan & Kuşakçı, 2002).

Students are reminded that there will be no right or wrong answer in brainstorming. It would be fun to think that absurd or unusual ideas trigger productive resources while brainstorming. Nonsense or ridiculous ideas often lead to practical ideas. Each idea is written on the board uncritically, and then time is spent rejecting the proposed ones. Knowing that students can present an idea without judgment makes them think that they have more chances to contribute to brainstorming than fear of appearing stupid. When the suggestions are completed, each suggestion is discussed and the students can also see which of their ideas are effective solutions or not (Nelsen, Lott & Glenn 2000: p. 98-103). In teacher-student, manager-employee and similar relationships, as Albrecht (2004) quotes from the philosopher Aldous Huxley, “the important thing is not who is right but what is right”.

Brainstorming was developed in the 1930s by Alex F. Osborn, who worked in an advertising office in New York (Rawlinson, 1995). According to Grossman (1984), brainstorming was introduced and announced by Walt Disney in the late 1920s and developed by Alex Osborn. Osborn applied brainstorming as a method of group work and discovered that the shortest and safest way to get new ideas is a deliberate storm in the human brain (Canbolat, 2000). Osborn developed this idea generation process and named it brainstorming, which includes four basic rules in his *Applied Imagination* (1953) book (Fleming, 2000).

- The more the idea, the better.
- The more unusual the idea, the better.
- Combination and development is done.
- It is forbidden to criticize ideas.

The purpose of the first rule is to generate a lot of ideas. Osborn believed that by generating many ideas, the chances of getting many good ideas increase. For this reason, everyone should contribute with as many ideas as possible

and take part in the work. The purpose of the second rule is to spark creativity. What it mean by the third rule is to create high quality ideas that are built and developed on other ideas. The purpose of the fourth rule is to focus group members on the current issue and to reduce members' fear of being evaluated (Fleming, 2000).

Similarly, Rawlinson (1995) attributed the success of brainstorming sessions to the adoption and use of the following four guiding elements:

- Leaving the evaluation for later,
- A free environment,
- Quantity,
- Crossing - Development.

Fleming (2000) states that Osborn's (1957) brainstorming groups working within the framework of these rules will generate more ideas than individuals working alone in the same number. According to Coşkun (2001), Osborn (1957) argued that an individual in a group could generate twice as many thoughts with brainstorming than when they worked alone.

Taylor, Berry, and Block (1958) were the first researchers to test Osborn's claim. These researchers compared brainstorming groups that produced different ideas with normal groups that produced different ideas and proved that Osborn's claim was not faultless (Fleming, 2000).

Coşkun (2001) states that almost all experimental studies conducted in the brainstorming literature show that interactive (real) groups that use brainstorm produce less ideas than the nominal or solitary group of individuals working alone in the same number. However, Sutton (2006) states that these studies fail to reflect the authentic brainstorming, stating that the standard and basic rule of "combination and development; build on and expand the ideas of others" is inapplicable in face-to-face brainstorming groups.

According to the determination of Fleming (2000); while reaching this result, in order to make an objective comparison between the real group (interactive) and the independent (nominal) group; individuals in the real group and the nominal group are given the same time to formulate ideas. While effectiveness is often measured by the number of unconventional ideas generated in brainstorming sessions in a given time, the quality of the solution and performance are measured less frequently. As a result of the researches, it is stated that the nominal groups consistently exceed the face-to-face brainstorming groups regardless of the dependent variable, number or quality (Mullen, Johnson & Salas (1991).

Considering that meaningful learning is aimed with an inquiry-based education within the framework of constructivist approach in science education; it is not possible to demonstrate the success and effectiveness in science lessons with the results of the researches in the field of psychology that have tested the functioning and application of the technique in different situations without evaluating the quality of the idea created on brainstorming. Therefore, how does this technique, which is carried out in accordance with the rules in current learning and teaching environments, in science lesson, affect students' success and learning? Beyond the number of ideas generated, it is important in the education and teaching process that the knowledge is structured by the learner by making sense of it. Is brainstorming used as a question-answer technique or discussion technique consisting of a question asked by the teacher and students' answers at any time during the lesson, or as an interactive dynamic idea generation session?

Original, extraordinary, creative ideas and thoughts in the classroom environment should not be ignored, the right ones should be passed on to other students, the wrong ones should be discussed and corrected to the students, and the missing ones should be completed by the learners under the guidance of the teacher.

## **2. Purpose of the Research**

“What if There Was No Pressure?” unit is taught in science lesson in the 7th grade of elementary school. In this study, it is aimed to examine whether the brainstorming of this unit affects academic achievement and concept learning and to reveal the ways in which science teachers apply this technique in science lessons.

## **3. Research Problem**

For this purpose, answers were sought for the following sub-problems:

1. Does brainstorming in science class have an effect on students' academic achievement?
2. Does brainstorming affect concept learning in science class?

## **4. Method**

This research is an experimental study with a pretest-posttest control group that examines the effect of brainstorming on achievement and concept learning in science lesson.

Lessons in both control and experimental groups were conducted by the researcher to eliminate the teacher factor. In both groups, the pressure unit was taught on a constructivist basis in accordance with the curriculum, with techniques such as oral presentation, experiment, question-answer. While the pressure unit was being processed in the experimental group, the brainstorming technique was also used, unlike the control group. The pressure unit consists of 6 subjects. With brainstorming sessions on every subject throughout the pressure unit a total of six brainstorming sessions were held throughout the unit. During the brainstorming, students' thoughts on the question asked or the situation described by the researcher were tried to be taken.

As cited by Kızıllhan (2003), Wilen and Clegg (1986) emphasized what kind of points teachers should pay attention to when asking questions in order to achieve a better and higher level of student success. These points are; expressing the question in clear and understandable sentences, waiting for at least three or five minutes until you get as many answers from the students as possible especially for questions that require high-level thinking skills, encouraging all students to answer, being able to balance between willing and unwilling students to answer their thoughts were summarized as editing probes in order to expand and develop their ideas. In this respect, the rules of brainstorming should be made by providing these conditions. In the study, care was taken to ensure these conditions.

Six questions prepared for brainstorming throughout the pressure unit were tried to be prepared in such a way that students could analyze the situation and make an assessment by using their knowledge of the relevant subject. Each brainstorming question is prepared to cover the content of the subject.

In the first session, it was observed that the students were affected by each other's thoughts, could not express their original ideas, and repeated expressions similar to the ones previously said. In addition, in this first session, students' ideas were tried to be recorded on tape. It was tried to hide the voice recorder, not to disturb the natural environment of the classroom and to prevent the students from being adversely affected by this extraordinary practice in the lesson. However, this practice was abandoned because of the fact that secret recording is difficult for the researcher who teaches the course alone, it can negatively affect the motivation of the researcher in the course, and the recordings are of poor quality and difficult to analyze. Hiding the recorder caused the recording quality to decrease.

In a study conducted by Mullen, Johnson and Salas (1991), it was concluded that the loss of productivity increased in terms of quality and quantity when the

answers were recorded on tape during brainstorming. For this reason, in the brainstorming sessions, the students were asked to give their answers in writing (in 1/4 size of A4 paper). Since the original ideas of the students participating in the brainstorming are important, an obligation to hold such a session has arisen in order to prevent positive or negative criticisms and reactions of other students to the answers given and for each student to express their opinion. It was tried to prevent some students from being hesitant in expressing their opinions due to the students' criticism of each other.

According to Paulus, Larey, Putman, Leggett and Roland (1996), although participants in the brainstorming group are motivated by knowledge about the performance of others, verbal expression of ideas can increase evaluation apprehension (social anxiety) and production blocking (product inhibition) and neutralize the potential benefits of social benchmarking information provided by the verbal expression procedure. As a matter of fact, as a result of their research, the production blocking that occurred when individuals in the brainstorming group shared their ideas decreased the performance level of the brainstorming participants when they expressed their ideas verbally, compared to the situations where there was no verbal expression. However, it should be noted that the relationship between verbal expression and loss of production is only around 16%, and it is emphasized that group interaction reduces performance by around 50% in terms of typical verbal expression of opinion.

Mullen, Johnson, and Salas (1991) began their article with the following statement:

“So loud each tongue, so empty was each head,  
So much they talked, so very little said. (Churchill, 1761).”

Because in their research they observed: Brainstorming groups produced significantly less number and quality of ideas than nominal groups working alone, that is, the group consisting of individuals working alone and not interacting face-to-face with other group members. This loss of production; in larger groups, in the presence of the researcher and when playing the instruction on tape are higher compared to the nominal group consisting entirely of solitary individuals (Mullen et al., 1991).

#### ***4.1. Application Method of Brainstorming Technique in Science Lesson***

In this application, the students were told that brainstorming should be done in accordance with some rules. During the brainstorming, students were asked to abide by the following rules:

1. Time is limited,
2. No positive or negative criticism will be made to the given answers in any way,
3. There should be no laughter or any other kind of reaction,
4. They should give as many opinions as possible,
5. They have freedom of being nonsense,
6. After the brainstorming, it was said that the answers would be discussed and the most appropriate answer or answers would be structured and developed together if necessary.

The brainstorming technique was performed according to the following method and flow chart.

***Four basic rules to follow in brainstorming:***

Any kind of criticism is prohibited,

Any idea that comes to mind should be expressed,

Lots of ideas should be generated,

Ideas should be combined and developed.

***A. Preparation Phase***

- Brainstorming rules and method are explained.
- The problem is written on the board as a question. It can be supplemented with graphics, figures or pictures.
- By reminding the rules, it is requested to express all kinds of ideas that come to mind without meaning. Everyone is asked to write as many ideas as they can, and it is emphasized that they have the freedom of being nonsense.

***B. Implementation (Brainstorming) Phase***

- Everyone writes their idea on a piece of paper 1/4 the size of A4 paper.
- Brainstorming ends when idea generation stops. (15-25min)

***C. Evaluation Phase***

- The papers are collected and reread by the teacher and categorized on the board with the students.
- The ideas produced are classified for the solution of the problem. Discussions are held at this stage. Verbal production of ideas can be continued.
- The ideas produced are discussed and the best idea is tried to be reached for the solution of the problem.

Figure 1. Brainstorming Technique Application Method

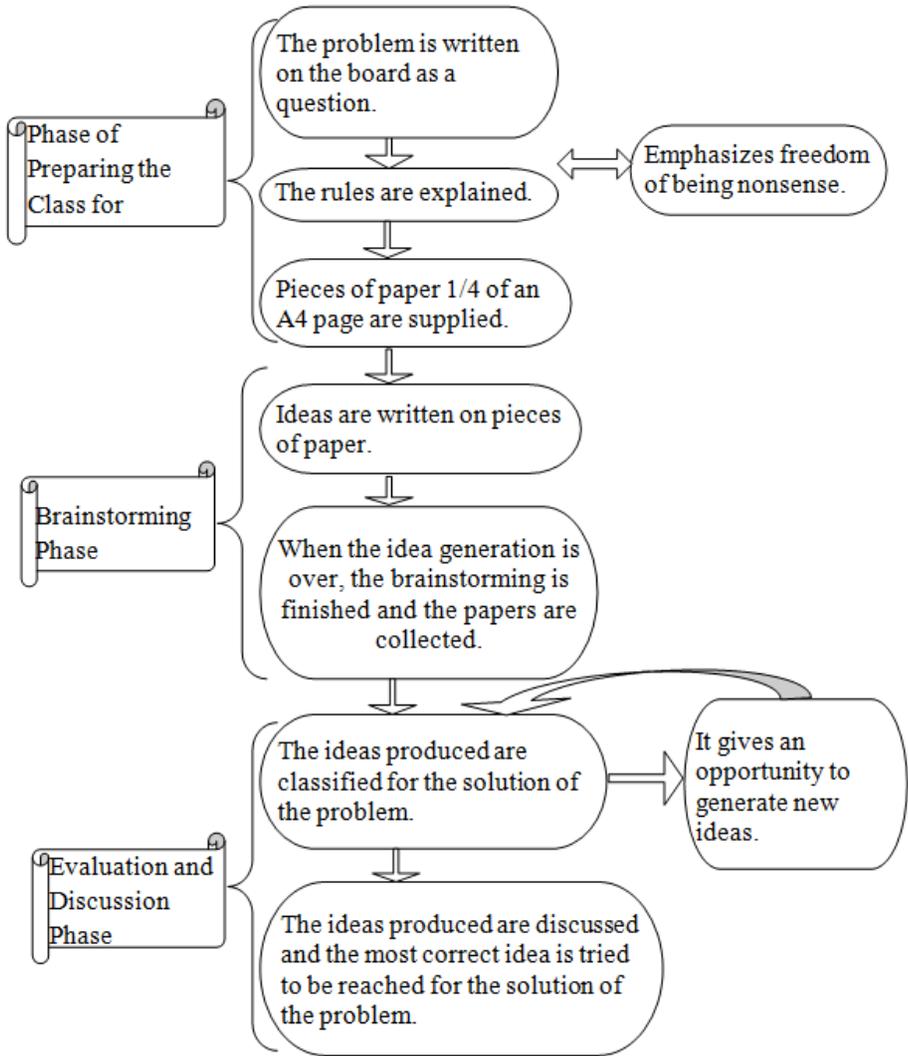


Figure 2. Brainstorming Technique Application Chart

In brainstorming, quantity is as important as quality. In other words, it is important that as many students as possible express their opinions and generate ideas. For this reason, every student's ideas and thoughts were tried to be taken. Each student was asked to write their thoughts on the question or the described situation, and the answers given, even if they were absurd, illogical, and irrelevant, were read by the teacher and evaluated together with the students, and written in categories on the board. Expressions suggesting the same meaning or a common solution or leading to a common solution were taken into the same categories and the best answer for the solution of the problem was

tried to be structured as a result of discussions by questioning with the students. At this stage, the students were given the opportunity to develop their answers and produce new ideas, and brainstorming was tried to be continued during the discussion stage.

In cases where one class hour was not enough for all these activities, the discussion continued in the next lesson. After the brainstorming, the subject was introduced and the lesson was taught with techniques such as constructivist-based oral presentation, experiment, question-answer, inquiry as in the control group.

Brainstorming was thought to be an opportunity to check students' knowledge and to motivate them to the lesson. It is thought that enabling students to realize what they know about the subject, their deficiencies and wrong information and to decide what they want to know will yield positive results for success and learning.

In the control group, the lessons were taught with techniques such as oral presentation, experiment, question-answer and inquiry. No brainstorming session was held in the control group throughout the application. The experimental and control groups were compared in terms of academic achievement (with multiple choice knowledge test) and concept learning (with concept maps), and the effectiveness of the brainstorming technique was tried to be revealed.

Six brainstorming sessions were conducted throughout the application in the experimental group. The pressure unit consists of six subjects (main title). These subjects basically include solid pressure, liquid pressure, gas pressure and Archimedes' law. A brainstorming session was held at the beginning or end of each topic and the answers given to the brainstorming after the session were analyzed and discussed with the students and integrated with the course content. The topics in the pressure unit and the questions or situations for brainstorming are as follows.

UNIT: What If There Was No Pressure?

Subject Headings:

1. I Apply Force, I Create Pressure.
2. Fish at the Bottom of the Sea, Human at the Bottom of the Atmosphere.
3. Apply Pressure to the Liquid; Transfer to All Sides.
4. Air Molecules in the Balloon Fly in All Directions.
5. Water Cannot Float Every Object In It.
6. Balloons Hanging in the Air

Brainstorming questions for each topic are given below:

- What if there was no pressure?
- What happens if we stand on the scale with one foot? Does the scale measure mass or weight?
- The tanks that feed the city water mains are built on high places, why? In multi-storey buildings, water flows faster from the taps on the 1st floor, why? By what physical principle would you explain them?
- What can be said about the volume of the balloon in liquids when we immerse an inflated balloon in olive oil, salt water and distilled water to the same depth, respectively?
- When we throw a piece of iron into the water, how does it sink, but how do ships made of iron float?
- When does a balloon hang in the air, when does it fall to the ground, when does it fly?

## 5. Sample of the Research

For the research, two groups were formed from 7th grade students of a primary school in Kadıköy, Istanbul, with the permission obtained from the Directorate of National Education. With the random method, one of these groups was determined as the experimental group and the other as the control group. The unit of “What If There Was No Pressure?” was carried out with techniques such as oral presentation, experiment, question-answer and inquiry on a constructivist basis in both groups. In addition to this, the brainstorming technique was used throughout the unit in the experimental group.

The universe of this research consists of the 2nd stage students of a primary school in Kadıköy district of Istanbul, and the sample consists of 84 students in the control and experimental groups randomly selected from the 7th grades of the same primary school.

Table 1: Experimental and Control Groups Student Numbers

	Experimental	Control
Girl	22	19
Boy	20	23
Total	42	42

## 6. Data Collection Tools

In this research, knowledge test and concept map were used as data collection tools. Information about data collection tools is given below:

### **6.1. Knowledge Test**

A knowledge test consisting of 55 multiple-choice questions was prepared in order to measure the success of the students in pressure. The questions were selected from the exam preparation books, textbooks and exam questions recommended by the Board of Education and Discipline, taking into account the gains of the pressure unit. At least two questions were selected for each gain. The test was examined by a subject area expert, a science teacher and an assessment and evaluation expert, and evaluated in terms of scope, structure, appearance, and the number of questions that were corrected in line with the opinions was first increased to 40, then reliability study was made and item-total test was carried out and item-remainder and item discrimination indices were calculated. By removing the items which Item-total, item-remainder and item discrimination relations were not significant at the 0,05 level from the test, the number of questions was reduced to 32. For this test, the Cronbach Alpha coefficient calculated statistically based on the variance of each question was found to be 0,886. The Guttman coefficient for dividing the test into two equal halves is 0,84 and the Spearman-Brown coefficient is 0,85. The highest value for the reliability of the test was Cronbach's alpha coefficient 0,89, and the minimum reliability value for Guttman was 0,84 and for Spearman-Brown was 0,85. These findings show that the prepared knowledge test is reliable.

### **6.2. Concept Map**

Concept map, which is one of the alternative assessment techniques, was used as an assessment tool in this research, and it was tried to determine the concept learning levels and misconceptions of the students. In order to determine the effect of using the brainstorming technique in science lesson on concept learning, students were drawn pre-post concept maps.

## **7. Analysis of Data**

The multiple-choice achievement test was prepared by the researcher considering the gains of the pressure unit, and its validity and reliability were checked. The knowledge test (multiple choice achievement test) was applied to both groups as a pre-test and as a post-test by changing the order of the questions after the unit was completed.

### **7.1. Knowledge Test**

Single Factor Covariance Analysis was used in the analysis of the data obtained from the knowledge test. According to the explanation of Büyüköztürk (2002);

The purpose of the Analysis of Covariance (ANCOVA) is to provide statistical control of a variable or variables that have a relationship with the dependent variable, apart from a factor or factors whose effect is tested in a research. In this context, it can be said that ANCOVA has two main advantages over simple ANOVA. These advantages are;

- a) Provides greater statistical power due to reduced error variance,
- b) It provides a reduction in bias in the experiment when there are differences between the groups at the beginning of an experiment.

However, ANCOVA is a powerful statistic that can be used not only when there are significant differences between groups regarding a potential covariate, but also when there is a linear relationship between the scores of the covariate and the dependent variable, even under the condition that the group mean scores are equal at the beginning.

Covariance analysis makes it possible to determine the true effect of the process in the experiment by eliminating the external factors that cannot be controlled by the research design with a linear regression method. With ANCOVA, adjusted values based on the covariate are produced for each observation on the dependent variable and it is examined whether the differences between the adjusted group mean scores calculated from these values are significant.

## **7.2. Concept Map**

Concept maps were drawn by the groups with their preliminary information and their final information after the unit was taught. The first and last concept maps were used to evaluate the concepts they learned throughout the unit. While making this evaluation, according to the first concept map in the last concept map; “Has the number of concepts increased?”, “Is the relationship between concepts established, is the relationship described or written, are there cross-relationships, are examples given?” etc. questions were evaluated and students’ misconceptions were tried to be determined.

Concept maps drawn by students were evaluated and graded according to the number of concepts, the number of hierarchies, the number of cross-relationships and the number of examples. The six methods used in scoring the concept map (McClure, Sonak, Suen, 1999) are given below:

**Holistic Scoring:** Scoring is made between 1 and 10, it is built on the whole.

**Holistic with Master Map Scoring:** A model map is used to guide the scoring process.

Relational Scoring: Scoring is made according to the number of correct propositions.

Relational with Master Map Scoring: Scoring is done according to the model map to guide the scoring process.

Structural Scoring: Structural scoring is done according to correct proposition, hierarchy, cross-relationship and examples.

Structural with Master Map Scoring: Structural scoring is done according to the model map to guide the scoring process.

Using the holistic scoring method provides an opportunity to measure the understanding of each concept map and the concepts used in the map. According to this evaluation, each map is evaluated on a scale of 1 to 10 (Mc Clure, Sonak & Suen, 1999).

The structural scoring method is the original scoring criterion method proposed by Novak and Gowin (1984) to evaluate meaningful learning (Materna, 2000). This method also considers high-level structures in concept maps in addition to valuing true propositions. Points are awarded based on the number of crosslinks and hierarchy levels defined on the map. Hierarchies are defined as separation structures that show dominant-recessive categorical relationships between concepts. Crosslinks are relationships that are defined between concepts in different parts of the hierarchy.

In this study, the structural scoring model was used to score the concept map. The scoring scale is as given below if the items are appropriate:

Concepts;	1 point x number of concepts	=
Relationships;	1 point x number of relations	=
Hierarchies;	5 points x number of hierarchies	=
Crosslinks;	10 points x number of crosslinks	=
Examples;	1 point x number of examples	=
Score		=

In this study, a concept map was drawn by the researcher with the concepts of the pressure unit, this map was approved by taking the opinion of the expert, and the concept maps of the students were evaluated by comparing them with this concept map. Concept maps drawn in both groups were evaluated and graded according to the number of concepts, the number of hierarchies, the relationship between the concepts, the cross-relationship and the number of examples. Since there are no cross-links in the concept maps drawn by the students, this relationship was not scored. Then, by comparing the first concept maps of the students with the final concept maps, the concept learning of the control group and experimental group students was examined and a comparison was made.

It has been tried to reveal whether the students have learned the concepts or not and whether their pre-existing misconceptions have been eliminated. In this study, it was focused on whether the concepts were learned rather than the evaluation of concept maps.

## 8. Findings

### 8.1. Findings and Comments on the Data Obtained from the Knowledge Test

Sub-Problem 1. Does teaching science lesson with brainstorming technique have an effect on students' academic success?

In order to answer this question, the data obtained from the pre-post knowledge test applied to the groups were evaluated.

For this evaluation, covariance analysis was used to compare the mean scores by controlling one or more variables thought to be related to the dependent variable while examining the effect of an experimental procedure on the dependent variable (Büyüköztürk, 2002).

To examine the effect of brainstorming on academic success (the dependent variable), the variable that is thought to have an effect on success (pre-test) was controlled.

Statistics of the achievement test pretest and posttest scores of the groups are given in Table 3. When Table 3 is examined, it is seen that the pretest mean scores of the groups are different from each other. And also, it is seen that the posttest mean scores of the groups increased compared to the pretest mean scores. Covariance analysis was performed to determine in which group the increase was higher. Analysis of covariance (ANCOVA) is a statistical method that analyzes the scores of the groups at the end of the experiment according to this difference at the beginning, when there are differences between the groups at the beginning of the experiment.

Table 2: Results of Group-Pretest Joint Test Dependent Variable: Posttest

Source of Variance	Sum of Squares	df	Mean Squares	F	Significance Level (p)
Group	6,412	1	6,412	0,297	,587
Pretest	523,672	1	523,672	24,250	,000
Group* Pretest	1,255	1	1,255	0,058	,810
Error	1554,839	72	21,595		
Total	26700,000	76			

$R^2=,380$  (Adjusted R Squared)

Before the analysis of covariance, it was checked whether the slope of the lines of the pretest and posttest scores was the same. It was investigated whether there was an interaction between the independent variable (group) and the co-variable (pretest). It was seen that the group-pretest effect on the posttest scores of the experimental and control groups is insignificant in Table 2 ( $F_{1-72}=0.05$ ,  $p>0,05$ ). Since the p value obtained for the group\*pre-interaction is 0,81, the hypothesis of “the slope is the same for both groups” was accepted since this finding is not statistically significant. This finding shows that the slopes of the regression lines, calculated for the prediction of the posttest scores of the groups based on the pretest, are equal.

Table 3: Descriptive Statistics of Achievement Test Pretest-Posttest Arithmetic Means and Posttest Corrected Averages by Groups

Group	N		Observed Mean		Adjusted Mean	
			X	sd	$X_d$	se
Experimental	38	Pretest	12,44	4,26		
		Posttest	20,10	5,10	19,10	,77
Control	38	Pretest	9,63	3,42		
		Posttest	15,58	5,58	16,58	,77

The covariate that appears in the model was calculated: Pretest =11,0395

The average scores of the achievement test (post-test), corrected according to the achievement test (pre-test) scores of the students, are given in Table 3. Accordingly, the post-test mean scores were 15,58 in the control group; It was calculated as 20,10 in the experimental group. When the pre-tests of the groups are checked, it is seen that there are changes in the post-test scores. Posttest adjusted mean scores were 16,58 for the control group; 19,10 for the experimental group. The ANCOVA results are given in Table 4, regarding whether the observed difference between the post-test mean scores of the groups is significant or not.

Table 4: ANCOVA Results of Posttest Scores Adjusted for Pretest Scores by Group

Source of Variance	Sum of Squares	df	Mean Squares	F	Significance Level (p)
Pretest	560,748	1	560,748	26,306	,000
Group	106,504	1	106,504	4,996	,028
Error	1556,094	73	21,31		
Total	26700,000	75			

According to the Ancova results, the difference between the posttest scores, corrected according to the pretest scores of the control and experimental groups, is significant ( $F_{1-73}=4,996$ ,  $p<0,05$ ). According to the Benferroni test results performed among the corrected posttests of the groups given in Table 4, the posttest mean of the experimental group was found to be higher (Table 3).

According to these findings, it can be said that the brainstorming in the science course affects the academic success of the students positively.

## 8.2. Findings and Comments on the Data Obtained from Concept Maps

Sub-Problem 2. Does teaching science lesson with brainstorming technique affect concept learning?

In order to answer this question the data obtained from the concept maps, which is the second data collection tool drawn by the groups before and after, were evaluated.

Table 5. Unrelated “t” Test Results Related to the Difference Between Preconcept Map Scores of the Experimental and Control Groups

Group	N	X	sd	df	t	p
Experimental	37	4,94	5,97	72	-0,626	,533
Control	37	4,24	3,30			

Before the research, a preliminary concept map was drawn for the experimental and control groups. It was observed that the mean score of these groups from the concept map they drew before the application was 4,94 in the experimental group, 5,97 in the standard deviation, 4,24 in the control group and 3,30 in the standard deviation.

There is no statistically significant difference between the scores of the experimental and control group students from the concept maps drawn before the application ( $p>0,05$ ). Thus, before starting the research, it was seen that the experimental and control groups’ concept knowledge of the unit, “What If There Was No Pressure?”, was at the same level.

Tablo 6. Unrelated “t” Test Results Related to the Difference Between Experimental and Control Group Final Concept Map Scores

Group	N	X	sd	df	t	p
Experimental	37	10,35	7,76	72	-2,342	,022
Control	37	6,86	4,65			

At the end of the application, the final concept map was drawn for the experimental and control groups. It was seen that the mean score of these groups from the concept map they drew at the end of the application was 10,35 in the experimental group, 7,76 in the standard deviation, 6,86 in the control group and 4,65 in the standard deviation.

There is a statistically significant difference between the scores of the experimental and control group students from the last concept maps they drew after the application ( $p < 0,05$ ).

Such a difference shows that teaching with brainstorming in Science course positively affects concept learning.

Table 7. Related Group “t” test on the Difference Between Pre-Post Concept Map Scores of the Experimental Group

	N	X	sd	R			“t”test		
				df	r	p	df	t	p
Pre CM	37	4,94	5,97	36	0,440	0,006	36	-4,43	0,00
Post CM	37	10,35	7,76						

A significant difference was found in favor of the final concept map in the related group “t” test performed for the mean of the pre-post concept maps of the experimental group. The Pearson Product Moments Correlation Coefficient between the pre-post concept maps of the experimental group was found to be 0,440. With 36 degrees of freedom, this result is statistically significant.

Table 8. Related Group “t” test on the Difference Between Control Group Pre-Post Concept Map Scores

	N	X	sd	R			“t”test		
				df	r	p	df	t	p
Pre CM	37	4,24	3,30	36	0,293	0,08	36	-3,3	0,002
Post CM	37	6,86	4,65						

A significant difference was found in the related group “t” test for the mean of pre-post concept maps of the control group ( $p < 0,05$ ). However, the Pearson Product Moments Correlation Coefficient for the mean of the pre-post concept maps of the control group was found to be 0,293. With 36 degrees of freedom, this result is not statistically significant ( $p > 0,05$ ).

In the concept maps drawn by the experimental group students, the number of concepts is higher than the control group. Relationships between concepts are

better established and misconceptions are reduced. This shows that the lessons taught using the brainstorming technique have a positive effect on concept learning.

## 9. Conclusion, Discussion and Suggestions

When the findings were evaluated, it was found that teaching with brainstorming increased the success of the students and had a positive effect on concept learning.

1. Sub-Problem: Does teaching science with brainstorming have an effect on students' academic success?

According to the results above section, it was observed that there was a significant relationship between the brainstorming of the science lesson and the academic achievement of the students. It has been determined that the brainstorming of the science lesson has a positive effect on the academic achievement of the students.

Kaptan and Kuşakçı (2002) concluded in their experimental study that the difference between the success averages of the experimental and control groups was significant in favor of the experimental group and that brainstorming had a positive effect on the success of the students. Geuna and Giacobini-Robecchi (2002) used the brainstorming technique in the anatomy lesson in their experimental study and showed that the technique is an effective way for interactive learning in this lesson.

Wang, Rosé, Li, Chang, (2006) describe three types of brainstorming activities in science education: idea-generation, creative problem solving, and inquiry learning. Although there is an impression that idea generation alone may not help students acquire domain knowledge effectively, idea generation can be used as a basis for encouraging active thinking and for students to reach higher levels in taxonomy which includes creative problem solving and inquiry learning. Problem solving has two phases: Divergent thinking and convergent thinking. The problem solving process has several stages: Fact-finding and idea-finding are more divergent thinking axis, while problem-solving and solution-finding are more convergent thinking axis. Idea generation has a prominent role in divergent thinking in creative problem solving practices, encouraging the student to think actively and helping to engage with other members of the group as it helps to look at the problem from different perspectives. The inquiry activity begins with asking questions, then the student moves towards finding answers and asking better questions, which leads the student to inquiry and exploration. Idea generation and creative problem solving activities are suitable for going to inquiry activities. Rather than asking students for ideas or solutions that can

be used in problem solving, students may be asked to devise some meta-level questions that, if properly conceived, will lead them to better observe the topic being studied so that they can perform better at later stages and in generating ideas. The question-generation activity seems to offer new opportunities and power in the design of behavior and learning systems.

In this application, the lessons were presented in an interrogative style in both the experimental group and the control group, and it was tried to make the students recognize the problem or engage in the subject being studied by asking questions. This situation may have supported the brainstorming practice in the experimental group.

In this study, it was concluded that the brainstorming technique had a positive effect on academic achievement in science class. "The effect of brainstorming in nominal and interactive groups in science lesson should be compared in terms of academic achievement and concept learning." "In addition, evidence should be provided for the effectiveness of brainstorming in situations such as verbal expression, written expression (brain writing), use of flip chart, use of facilitators, use of encouraging ideas, and computerized brainstorming if opportunities are available."

## 2. Alt Sub-Problem: Does brainstorming in science lesson effect concept learning?

As a result of the analysis made to answer this sub-problem, it was determined that the brainstorming in the science lesson affected students' concept learning in a positive way.

When the findings obtained from the concept maps drawn by the students before and after the application to measure concept learning are evaluated, while there is no statistically significant difference between the scores of the experimental and control group students from the concept maps drawn before the application, there is statistically significant difference between the scores they got from the last concept maps they drew after the application. A significant difference was found in favor of the final concept map in the related group "t" test performed for the mean of the pre-post concept maps of the experimental group. After the application, the number of concepts in the concept maps drawn by the experimental group students is higher than the control group. Relationships between concepts are better established and misconceptions are reduced. A significant difference was also found in the related group "t" test for the mean of pre-post concept maps of the control group. However, the Pearson Product Moments Correlation Coefficient for the mean of the pre-post concept maps of the control group was found to be 0,293. With 36 degrees of freedom, this result

is not statistically significant ( $p > 0,05$ ). This shows that the lessons taught using the brainstorming technique have a positive effect on concept learning.

As can be seen from the results, the change in achievement and concept learning changed significantly in the experimental group compared to the control group. Considering that the only difference in the teaching of the lesson in the experimental group compared to the control group is brainstorming technique, it is possible to say that the brainstorming technique has a positive effect on concept learning. However, it is seen that the concepts are not fully learned in the experimental group. At this point, it cannot be expected that this technique alone will bring a very high level of success. In order to fully teach the concepts, it is necessary to try to reach all of them by considering the personal characteristics, learning styles and different types of intelligence of the students by using different methods and techniques. But in general, it can be said that the brainstorming of the science lesson affects concept learning positively.

Based on the above-mentioned results, some suggestions have been made below for science teachers, field experts and researchers who will work and work on this subject:

1. Brainstorming must be done within the framework of brainstorming rules. Brainstorming is not an activity in which the teacher expresses his or her own judgment in line with the answers given by a few students to an interesting question that the teacher asks at the beginning of the lesson or at a point where he wants to draw attention. Brainstorming can be considered as an activity for students to control their own learning and to realize their deficiencies and mistakes. Brainstorming can be used to determine students' prior knowledge, to control their learning, and to evaluate, as well as providing an opportunity to get to know students. It is a dynamic process within the framework of respect and responsibility where the participation of all students is required under certain conditions in a creative environment, where the student feels free, competitive and productive. In brainstorming, it is necessary not to limit the student, not to criticize, to get their original ideas, to encourage them to be creative, to value their ideas even if they are ridiculous.
2. Teachers can brainstorm for each topic of the unit in science class. The knowledge and skill levels of teachers on the rules and application of this technique should be determined and if necessary in-service and pre-service training programs should be conducted.
3. Brainstorming should not be used only as an activity to attract attention and to provide motivation, it can be used throughout the course, from beginning

to end, at every stage. Brainstorming questions about the subjects could be given in the science teaching programs, teacher's guidebooks and student books. At this point, necessary measures should be taken for the needs of the teachers, who are the implementers of the curriculum, in terms of lesson hours, and teachers should not be overwhelmed by such practices.

4. In order to save time in crowded classrooms and to prevent students from laughing at each other's answers and making positive or negative criticisms, the answers and ideas to be brainstormed can be written on small papers as in this study.
5. After the students' ideas and opinions are received, a class discussion can be made in line with the answers given and the related question or situation can be tried to be explained and concluded. In a sense, the brainstorming should continue, and a suitable classroom atmosphere should be created for students to improve their answers in the brainstorming, if any, to report their newly produced ideas. It is necessary to help students correct their mistakes through their own cognitive processes by creating a discussion environment based on answers and opinions in the classroom, and to guide them to complete their deficiency through their own mental processes.

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## CHAPTER 5

# PEER BULLYING IN PRESCHOOL STUDENTS: ITS CAUSES, EFFECTS, AND CONSEQUENCES

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### 1. Introduction

The preschool period is the time when cognitive development characteristics, which Piaget refers to as the preoperational stage, are observed. This period, which covers the 2-6 age range, is divided into two stages: symbolic (2-4) and intuitive (4-6) stages. The majority of children receiving pre-school education are at the intuitive stage. At this age, children start learning social rules, but they are not yet at a level to explain the rationale behind these rules. They can have difficulty in getting along with their peers because they are egocentric and cannot evaluate events from others' perspectives, have difficulty in sharing things, put their wishes above others, and have difficulty in delaying their wishes. This situation may cause them to experience difficulties in their games, turn-taking behaviors, and in some situations that require collaboration. The self-control in children of this age is not yet at the desired level, and one of the adaptation problems brought about by this situation is bullying.

Bullying is often confused with aggression and violence. According to the Turkish Language Association (TDK) (2021), aggression is the effort of the individual to impose their thoughts and behaviors on others by force, despite external resistance. It involves an intention to harm someone or something. To distinguish aggressive behavior, it is important to look at the intention first. If

the aim is to harm the other party, this is considered aggression (Pişkin, 2002). Bullying is a subset of aggression, which is typically categorized as physical, verbal, or relational (Shore, 2005). Bullying has been defined as an often repeated and unfair form of physical, verbal, or psychological aggression in which power or power imbalance takes place between the bully and the victim (Olweus, 1993). This definition includes three main criteria: intentional aggression, repetition of harmful behavior, and power imbalance (Swit, 2018). According to Salmivalli (2010), bullying is a form of aggression in which an individual (or a group of individuals) systematically and over time hurts, irritates, humiliates, or excludes someone weaker or less powerful. In particular, the power imbalance between bullies and victims and repetition over time are key factors in discriminating bullying from general peer aggression (Ybarra, Espelage, & Mitchell, 2014). Pişkin (2002), on the other hand, defined bullying as aggression that results in a situation where one or more students disturb weaker students intentionally and constantly and where the victim is unable to protect himself/herself. Though bullying is a type of aggression, it is not enough for any behavior to only have the characteristics of “aggression” to be characterized as bullying. Aggressive behaviors between people with equal or similar physical or psychological strength are not considered peer bullying. At the same time, there should be an “unequal power relationship” between the parties, the behaviors should be “constant”, and they should be done “intentionally”. In other words, aggressive behaviors that are done once or that harm the other person unintentionally are not considered peer bullying (Olweus, 1993). When compared to aggression, these characteristics of bullying show that it is a more stable and continuous behavior (Aslan & Tuğrul, 2014). Researchers divide bullying into three groups, considering that it occurs in three ways in general: physical, verbal, and relational bullying (Olweus, 1993).

## 2. Types of Bullying

**2.1 Physical Bullying:** This type of bullying is characterized by behaviors, such as hitting, biting, kicking, spitting, pushing, pinching, slapping, punching, pulling hair, and throwing an object (Iraklis, 2020). According to Swit (2018), examples of physical bullying include hitting, grabbing toys, pushing, pinching, breaking, or using “waiting tactics” to show dominance and destroy another child’s creativity. Limber & Small (2003) stated that children who engage in physical bullying can do this as attention-seeking behavior. According to Beale (2001), physical bullies are action-oriented. This type of bullying includes hitting or kicking the victim, or seizing or harming the victim’s property. This

is the least complex type of bullying because it is so easy to identify. Physical bullying behaviors seen in the preschool period include kicking, slapping, or punching a friend, throwing game materials and drawing pens, hitting with a toy, spitting; pushing, pinching, shaking, tripping, hitting with a toy; pulling a friend's hair, hitting his/her head against the wall, soiling or damaging his/her clothes intentionally, and taking an object or toy from his hand by force (Besnili, 2019).

**2.2. Verbal Bullying:** In this type of bullying, bullies aim to hurt the victims with their direct words (Uysal & Dinçer, 2012). Verbal bullying includes behaviors such as name-calling, laughing at someone, teasing, threatening, using bad language, humiliating, revealing secrets, and gossiping (Rose et al., 2015). According to Swit (2018), verbal bullying includes name-calling, swearing, teasing, screaming and shouting, saying “others are naughty”, and saying hurtful things such as “he/she is a baby”. According to Beale (2001), verbal bullies use words to hurt or humiliate another person. Verbal bullying includes name-calling, humiliation, making racist comments, and constant teasing. This type of bullying is easiest to apply to other children. It can occur in a very short time, and its effects can be in some ways more devastating than physical bullying because there are no visible physical effects. Verbal bullying behaviors seen in the pre-school period include threatening, blaming and scaring a friend, making fun of a friend, swearing at a friend, insulting, teasing, name-calling, and saying sexually abusive words (Besnili, 2019). Berger (2007) stated that the incidence of verbal bullying was more frequent than physical bullying.

**2.3. Relational Bullying:** This is a form of social isolation that includes gossiping, excluding students from activities deliberately, spreading gossip, and other measures to change peer groups (Olweus, 1993). Björkqvist, Lagerspetz, and Kaukiainen (1992) defined relational bullying as “an attempt to inflict pain and pretending as if there is no intention to hurt”. Relationship bullies try to persuade their peers to exclude or reject a particular person or persons and cut social connections of the victims. This type of bullying is linked to verbal bullying and often shows up when children (mostly girls) spread nasty rumors about others or exclude an old friend from their peer group. The most devastating effect of this type of bullying is rejection by the peer group at a time when children need their social connections the most (Beale, 2001). In general, research data show that physical and verbal bullying is more common among young children than indirect bullying such as spreading rumors (Iraklis, 2020). Although even preschoolers (especially girls) show relational bullying,

this type of bullying becomes more common and damaging during adolescence because children are more socially gifted, and peer approval is more important than anything (Berger, 2007).

### 3. Bullying Roles

Peer bullying in preschool has various roles. They are divided into three types as bullies, victims, and bystanders. According to Uysal & Dinçer (2012), bullying roles in preschool can be divided into four as bullies, bullies-victims, victims, and bystanders. According to Perren (2000), bullies are larger and stronger than the average, they are aggressive and impulsive, have low empathy, are generally unconcerned, and lack cooperation, and that they exhibit aggressive behaviors that are perceived as socially inadequate behavior. Baldry (2003) stated that children who engaged in bullying behaviors showed the same behaviors in the home environment, too. Students who are bullies, intimidate other students with their verbal and non-verbal actions, ridicule other students, take away their right to free learning, damage their belongings, prevent them from expressing themselves, and thus cause children to feel insecure at school and to be frequently absent from school (Şahin et al., 2010). Children who are bullies generally get a sense of pleasure and power as a result of this behavior (Smith & Monks, 2008). Bullies tend to exhibit some of the following characteristics:

- They have a strong desire to dominate and subjugate other students and to find their way.
- They are impulsive and easily irritated.
- They show little empathy for victimized students
- They are often aggressive towards adults, including parents and teachers.
- If they are male, they are physically stronger than other males in general and their victims in particular (Olweus, 2005). In addition, bullying children are introverted, have difficulty in communicating, have low self-esteem, have no problem-solving skills, do not accept criticism, and act as if they were popular even though they are not (Viding, Simmonds, Petrides, & Frederickson, 2009). Victims are children who are exposed to peer bullying by bullies. They are not sociable, lack leadership traits, and have submissiveness, isolation, and withdrawal characteristics. They tend to be weak, lack self-confidence, and tend to be less popular with their peers, are less physically strong than others, are reserved and not assertive, are introverted, and have low self-esteem and few friends (Perren, 2000). They have a strong desire to adapt but have difficulty entering social groups and making friends. They think that they are mistreated or excluded by their

peers, but they do not know how to change this situation (Storey & Slaby, 2013). The most common victim type is the passive or submissive victim. They usually exhibit some of the following characteristics.

- They are cautious, sensitive, quiet, introverted, and shy.
- They are anxious, insecure, unhappy, and have low self-esteem.
- They are often much more depressed than their peers and have suicidal thoughts.
- They do not often have a single good friend, and they have better relationships with adults than their peers
- If they are male, they are usually physically weaker than their peers (Olweus, 2005).

According to Güvenir (2005), victims are insecure, unable to protect themselves, passive and submissive, and shy and introverted, and have no close friends. They are often the children of overprotective families, can be members of different races and ethnic groups, can have a stammer, a special learning disability, or a disability, and can have expensive items. Bullies-victims, on the other hand, can be defined as highly aggressive children who often exhibit reactive aggression. While bullies-victims might have been victimized by some strong members of the group, they can bully weaker children. Unlike passive victims, aggressive victims are not always found submissive, which may be a trait of their bully-victim status. When bullies-victims are attacked by others, they are likely to retaliate. When they are compared with children who have not been exposed to bullying, it is observed that there are no significant differences in their behaviors of leadership and setting boundaries. In addition, further analysis reveals that male bullies-victims display submissive behavior patterns compared to male bullies. Although bullies-victims are not introverted, they are often excluded by their peers. Therefore, they do not have many friends (Perren, 2000). According to Olweus (2005), the behaviors of these students can generally cause tension in their environment. Some of these students can be described as hyperactive. It is not uncommon for their behavior to provoke many students in the class, resulting in negative reactions from much of the class, or even the whole class. A bystander, on the other hand, is the person who is not a victim or a bully, but talks about the problem when asked (Ortega & Lera, 2000). While some of the bystanders only watch the event, others can interfere in the event (Olweus & Limber, 2010). They may also oppose the bully while intervening, or they may support the bully to help him/her to continue bullying (Hanish & Guerra 2000). By behaving in this way, they can either contribute to the fading or reinforcement of the event.

#### **4. Settings Where Bullying Takes Place**

Bullying most frequently occurs in school areas rather than on the way to and back from school (McEachern et al., 2005). According to Storey & Slaby (2013), bullying is frequently seen in daycare centers, preschools, home care groups, playgrounds, and early childhood settings. Tanrıkulu (2018) studied the setting and time of bullying in the preschool period. The teachers who participated in this study stated that bullying was experienced most during free playtime in the classroom, while sharing the toys in the classroom, and during the free play time outside the classroom, such as the garden and the game room. Pişkin (2002) found that children were exposed to bullying mostly in the classroom, then in the school corridors, and thirdly in the playgrounds and gardens.

#### **5. Family Characteristics in Peer Bullying**

Family is the primary institution where individuals socialize and which shapes the personality and behavior of its underage members. It is considered to have the longest impact on all aspects of a child's life. This is why the scientific community attaches special importance to investigating the relationship between family environments and bullying behaviors (Papanikolaou et al., 2011). Many studies have shown that peer victimization is associated with inconsistent, punitive, hostile and/or abusive parenting, high levels of negative expression, or high levels of family conflicts or violence (Vlachou et al., 2011). These findings mainly apply to the aggressive victim subgroup. According to Olweus (1993), three family types reinforce the child's bullying behaviors. These are families who do not care about the child's aggressive behaviors and do not take such behaviors seriously, families who use physical violence to discipline the child, and families who do not show interest in and love towards their children but approach them with negative feelings. According to Berger (2007), harsh, neglectful, or rejecting parents are generally more likely to raise bully or victim children who cannot control their impulses, especially if the mother is irritated and weak. Bullies are often less attached to their parents than the average child. According to Wolke & Samara (2004), children who are bullied by older siblings are likely to become bullies or victims. Low-income children are more likely to be victims than high-income children (Bonica et al., 2003).

#### **6. Causes of Peer Bullying**

Many researchers attribute bullying behaviors to complex and multiple grounds. Some characteristics of preschool bullies-victims are often socially undesirable

features, which cause them to increase their risk for becoming a victim and engage in bullying behaviors later in life (Saracho, 2016). Some situations in family relationships affect the family environment and therefore the child. These situations generally include the absence of the father, the absence of one of the parents in the family environment for various reasons, violence in the family communication, the psychological problems of the mother, crowded family environments, wrong attitudes of parents, and restless family environments. In addition, parents who are oppressive, unruly, and overly tolerant and who do not limit the behavior of the child or who show violence can cause the development of bullying behaviors of children (Pekel, 2004). There are also some psychological factors among the causes of bullying behaviors. These include the child's desire to gain power and to exert pressure, privileges gained by bullying behaviors, for example, trying to get another child to do the work that they should do, feelings of hatred towards the environment in children who have a passive family structure and whose family is not in the foreground (Olweus, 1993).

## **7. Consequences of Peer Bullying**

Bullying in preschool is a very important area. It has effects on bullies, victims, or bystanders (Levine & Tamburrino, 2014). Children exposed to bullying feel fear and anxiety when they are in settings where bullying takes place. This fear and anxiety cause children to dislike school, to exhibit avoidance behaviors due to the constant reoccurrence of bullying, and to experience feelings of anxiety, anger, and helplessness depending on these situations (Pişkin, 2002). Once the child is a victim, other children usually do not want to make friends with him. Children avoid or exclude the victim because they fear being a target and want to maintain their position in the social hierarchy. Students who become a victim for several times generally stay behind from joining social groups and become isolated (Storey & Slaby, 2013). According to Gillies & Bosacki (2003), bullying can greatly affect the development of a person's self-concept and self-esteem. The psychologies of students who are exposed to bullying and who have to constantly cope with it are negatively affected, which negatively impacts students' perception of security. Victims of bullying are generally shy, isolated, and frightened. What drives bullying is the promotion of the belief that conflict is best resolved using threat and force. Bullying behavior is the attachment of a false meaning to the self-worth and power of the child. As a result, the child transforms himself/herself into a big social problem (Schroeder, 2006, cited in Yörük, 2016). As a result of exposure to peer bullying, the individual can experience mental problems, such as stammering, bedwetting at night, and sleep

problems; academic problems such as loss of concentration, decrease in course success, school refusal, and discordance in the classroom; and social problems, such as low self-esteem, decreased self-confidence, negative self-perception, the feeling of being neglected by friends, insecurity and introversion, and shyness (Güvenir, 2005). Children who witness bullying cannot pay enough attention to lessons and do not perform well enough academically (Whitted & Dupper, 2005).

## **8. Studies on Peer Bullying**

Iraklis (2020) examined the views of educators about peer bullying in early childhood and emphasized that educators realized peer bullying but that they needed to receive education on its prevention.

Ilola et al. (2016) interviewed the families of 911 children to investigate the causes of peer bullying in four-year-old children and found that being a bully and a bully-victim was associated with behavioral problems while being a victim only was associated with somatic symptoms and peer problems.

Camodeca, Caravita, and Coppola (2015) investigated whether emotion regulation and social preference were associated with participant roles in bullying as a function of the quality of the relationship with teachers. They found a positive relationship between emotional instability and bullying, and a negative relationship between social preference and bullying and victimization.

In their study conducted to determine preschool teachers' views on peer bullying, Tepebaşı et al. (2010) found that teachers mostly defined bullying behaviors as physical violence and disobedience and that they rarely took into account the verbal and psychological aspects of bullying.

Gillies and Bosacki (2013) analyzed the drawings and stories of 15 kindergarten children with content analysis and found that the bullying behaviors of kindergarten students occurred during one-to-one peer interaction, not in group settings.

Perren (2000) found that bullying was a daily event in preschool and that this situation affected other children as much as the children involved in bullying. This study indicated that usually, bullies were boys and that they were victimized more.

Hanish, Ryan, Martin, and Fabes (2005) stated that exposure of kindergarten students to aggressive peers increased the risk for peer victimization but that being liked by peers and having friends reduced victimization and had a buffering effect.

In their study, Helgeland & Lund (2017) interviewed 31 children individually in four different preschool institutions and also observed 142 children in the same institutions. As a result, they determined that preschool children perceived bullying as “saying or doing something bad”. In the same study, it was observed that leaving the child who was the victim of bullying out of the game was the most common type of bullying.

Perren & Alkaser (2006) interviewed 344 children in their study investigating the social behaviors and peer relationships of children involved in bully/victim problems in kindergarten. As a result of the research, they found that compared to the children who were not bullied, victims were more obedient, more introverted, more isolated, less cooperative, and less social, had fewer leadership skills, and did not often have a playmate. As expected, bullies and bullies-victims were generally found to be more aggressive than their peers, and in addition, bullies-victims were less cooperative and less social and had fewer playmates than non-bullied children. It was observed that bullies were less pro-social, had more leadership skills than children who were not bullies, did not belong to large social groups, and were often in relationships with other bullies or bullies-victims.

Levine & Tamburrino (2014) stated that peer bullying was an increasingly growing problem in preschool and that through consistent and clear interventions, students would establish positive peer relationships that support a safe and healthy school climate and culture.

Beckman & Svensson (2015) conducted a study to determine the cost and effectiveness of the Olweus Bullying Prevention Program (DBPF), which was put into practice to prevent bullying in schools. As a result of the study, it was determined that the DBPF was costly, and it was stated that new prevention programs could be developed.

Uluoyurt (2012) investigated the peer relationships of 5-6-year-old children. As a result of the research, it was found that male students had a higher rate of exerting and exposure to peer violence than female students. In addition, it was revealed that students’ scores for exposure to peer violence in private kindergarten were higher than in public kindergarten.

Gültekin-Akduman (2012) investigated peer bullying in preschool in their study. As a result of the study, it was revealed that preschool children bullied their fellows more, boys exhibited more bullying behaviors than girls, and that the most common bullying method was physical one.

Salı (2014) examined peer relationships and exposure to peer violence in preschool children according to various variables and found that the rates of both exerting and exposure to peer violence in boys were higher than in girls.

Gülay (2009) investigated various variables affecting the social status of 5-6-year-old children and determined that as the level of acceptance of children by their peers increased, the level of exposure to peer violence decreased and that as the level of acceptance decreased, the level of exposure to peer violence increased.

Uysal (2011) examined the bullying behaviors among 60-72-months-old children and found that gender and teachers' professional experience had a significant effect on physical aggression and that father's education, mother's working status, and teachers' professional experience had a significant effect on relational aggression. It was also revealed that bullying behaviors occurred mostly in children's free time.

Aslan & Tuğrul (2014) revealed that the physical bullying behaviors of children mostly included taking toys or goods from their friends' hands by force and pushing their friends and that relational bullying behaviors were threatening and excluding their friends. In relational victimization, children mostly ignored and excluded their friends.

Yalçıntaş-Sezgin (2018) investigated the views of preschool teachers on peer bullying. According to the teachers' opinions, physical and verbal bullying was observed the most in the classroom, the family factor was the most effective as the cause of bullying, bullying behaviors were encountered most often in the classroom environment, they were mostly exhibited during leisure time activities, physically larger children (large-overweight) were engaged in bullying behaviors more, and that passive, shy, and physically weak children were victims most often.

Özözen-Danacı & Çetin (2016) stated that preschool children with a low level of motor development compared to their age were engaged in bullying behaviors more than children with normal development levels.

Yörük (2016) examined bullying behaviors and exposure to bullying in 3-6-year-old children and concluded that peer bullying decreased as the education level of the parents increased.

## **9. Conclusion and Recommendations**

In the majority of studies on pre-school bullying, it was found that gender indicated a difference and that boys were more likely to be bullies or victims than girls. When the families of students who were victims of bullying were examined, it was seen that the children of families with low socioeconomic levels were more exposed to this situation and that as the education level of their parents increased, the rates of bullying and victimization decreased. The

most common type of bullying in preschool is physical bullying. Bullying mostly occurs in the classroom environment and in free time. Considering the personality traits, bullies have high leadership characteristics, they are not affiliated with any group, but victims, on the other hand, have weak leadership characteristics, are introverted, and have weak self-confidence. Studies show that teachers can distinguish bullying behaviors but that they have problems with prevention and, therefore, need education.

Studies indicate that there is a need for preventive and interventional studies on peer bullying in preschool. Early intervention programs can be developed as part of a solution. By using observation lists, students who are at risk for being bullied or victimized can be identified in advance, necessary psycho-education programs can be arranged, and their families can be provided with counseling services. Since the bullying behavior occurs mostly in the classroom environment and in free time, the class size can be made up of a small number of students or an assistant teacher can be included. This problem can be emphasized in preschool storybooks. Students can be given social skills education so that they can express their feelings and thoughts more appropriately.

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## CHAPTER 6

# FOUNDATIONS OF CURRICULUM DEVELOPMENT IN EDUCATION

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### **1. Introduction**

The only way for countries to succeed in the field of education can only be by constantly updating and improving their curricula. Therefore, countries should have a flexible education program that is open to innovations in the field of education. The curriculum is the arrangement of learning experiences provided through activities planned at school or outside of school (Demirel, 2019: 6). Four elements are very vital when preparing a program according to the curriculum. These elements are purpose, content, educational status, and assessment and evaluation. These four elements should provide dynamic integrity within themselves. In particular, the curriculum of each course taught in schools should be prepared and planned according to these elements. These four elements of the program guide the teachers by leading them so that learning in schools is tried to be maximized.

Countries are constantly trying to improve their curricula by keeping them under control to modernize their education levels. In that case, based on four elements, curriculum development is the design of a program, the implementation of the designed program in schools, the evaluation of the implemented programs, and the correction or rearrangement of the evaluated programs according to the results obtained. Curriculum development consists of the integrity of continuous, applied, and collaborative studies. When a program is developed in the field of education, this program must be tested. Thus, curriculum development in education is a practice-based study. In addition, taking into account the developments and changes in the world and in the

country, as well as constantly changing, developing, and arranging the programs make the curriculum development studies perpetual. At the same time, working with teachers from different departments and individuals from different fields in curriculum development studies ensures that curriculum development studies are carried out on a collaborative basis. Curriculum development studies are theoretically based on four institutional bases: 1. Historical, 2. Sociological, 3. Psychological and 4. Philosophical.

## **2. Historical Foundations of Curriculum Development in Education**

Just as every concept, phenomenon, approach, model, or idea developed has a history, curriculum development in education also has a history. While developing a curriculum, expert opinions, experiences, practices, and researches are used.

### ***2.1. Curriculum Development Studies in the World***

The main purpose of the curricula is to ensure that individuals socialize and keep up with society, It can be said that the views on curriculum development started in the 5th-4th centuries BC, also called the Socratic period, during the period of Socrates, Plato, and Aristotle. However, it can be said that the educational process in those periods was carried out for many years without a specific plan and program (Uygun, 2008). Education at that time consisted of the concepts of discipline, spiritual perfection, and virtue. After the 3rd century BC, the Romans adopted the Greek policy of education or traditions to their own culture and formed an educational policy for grammar and rhetoric. The Romans interpreted education as a stage of preparation for life. In 1642 and 1647, the issue of teaching religious rules and the main laws of the country was regulated for the first time in the world with the Massachusetts Laws, and city administrations were asked to establish schools for this purpose (Soydan, 2013). Later, with the influence of the church in Europe, the period of classical and religious schools began in education, which brought the concept of God to the fore. The processes continued with a similar education policy until the 18th century. With the gradual opening of universities in the USA in the 18th century, the classical understanding of education based on the churches weakened and left its place to a planned and programmed education approach based on free research.

It is known that the first important work in the field of curriculum development was put forward by Franklin Bobbit in 1918 with a study called

'The Curriculum'. This work is also accepted as the first work that deals with all stages of curriculum development studies. Later, in 1949, Ralph Tyler wrote the book "The Basic Principles of Curriculum and Instruction". This work is considered a masterpiece in curriculum development. Another vital work in the field of curriculum development models, Taba's 'Theory and Practice' was published in 1962. Taba's work has guided the development of the curriculum and put it in a mold. The lessons that were given randomly in the world until the 19th century were now brought as a discipline and started to be given with the support of creative and free research (Tuncel, 2012). With the influence of curriculum development studies, science, social sciences, literature, fine arts, mathematics, philosophy, logic and other branches of science gradually began to take the place of the courses given in schools depending on religion (Celkan, 2011).

As a result, in the 19th century, Pastellozi formed the basis of the modern primary school curriculum and contributed to the development of the curriculum. According to Pastellozi, ignorance and poverty can only be eliminated by education and education should depend on the natural development of the child as a process. Researches, discussions, and discourses on the content and teaching methods of educational programs laid the foundations of curriculum development in education over time.

In today's 21st-century education policy, it has been the case that teachers only guide students, students learn by researching and questioning, students are in the center, not teachers, every lesson has a curriculum, and curricula are constantly corrected, arranged and developed and it is a system in which the theory of behaviorism as a philosophy changed to the theory of structuralism.

If the education history of our country is examined, it is obvious that the history of education dates back to the Huns, Gokturks, and Uyghurs. Researching the educational characteristics of the ancient Turks, it can be seen that the Turks adopted a life-centered education system at that time. In other words, the education system of the Ancient Turks was based on the situations that the individual would encounter in life. In that case, education in the old Turks was to raise individuals who would adapt to the customs, learn the martial arts and be self-sufficient in life (Akyüz, 2008; Binbaşıoğlu, 1995). In the educational history of the Turks, especially the Gokturks and their Orkhon Inscriptions have proven their educational existence with the alphabet they developed by writing on stone and the state structure and customs they described (Yılman, 2001; Terzi, 2008).

## ***2.2. Curriculum Development Studies in Turkey***

With the adoption of Islam by the Turks, the education given with oral explanations gave way to a slightly more systematic education approach and in a sense, education as a school started to be given in mosques, lodges, scholars' houses and palaces (Türer, 2008). By the time of the Ottoman Empire, it was seen that education was given in primary schools, madrasas, Enderun schools, Ahi community and minority schools where the children of non-Muslims were educated (Zencirci, 2015). During the Ottoman Empire, substantial steps were taken in education several times. Starting from 1773, institutions operating in western countries and especially military schools started to be opened in the country, then medical schools were opened, and general formal programs in the west began to be structured in the country after 1838 (Zencirci, 2015; Ergün, 2009). Although the Ottoman Empire brought innovations in the field of education to the country in the 18th century, these innovations were on teaching, education in Europe, religious education, the necessity of primary education, and the spread of education. In other words, it can be said that various changes and innovations were made in education until the proclamation of the Republic in our country. However, it cannot be said that noteworthy studies have been carried out on curriculum or the development of curriculum.

The first law enacted with the proclamation of the Republic in our country was the Law on Unification of Education in 1924, and with this law, all educational institutions were gathered under the Ministry of National Education, and extensive changes were made on school programs with this law (Demirel, 2019). The purpose of the law was to ensure national unity in the field of education and training in the country and to be able to conveniently supervise all schools. Until this date or this law, education and training activities in our country were not carried out from a single point. There was no unity between the institutions in terms of education. After the Law of Unification of Education, changes started gradually in the country. Some of these are that education and training became modern, free and national, and coeducation was started, foreign schools were taken under control, schools that did not accept control were closed, madrasah type schools were taken under control, curriculum programs were created in education thanks to this law, primary education became compulsory, students' desire for the west decreased and the importance given to education in the light of science increased. Influenced by this law, a letter reform was made and Latin letters were accepted

Later, during the period of Ismail Safa Özler's Deputy Minister of Education, a letter was written to John Dewey within the knowledge of Mustafa

Kemal Atatürk and Dewey was invited to Turkey. Dewey came to our country in July 1924 upon this invitation and prepared a report by doing various studies on educational activities in the country. Dewey was asked to prepare a detailed report on how education should be in the newly passed democracy, how teachers should be trained, as well as the clothes that students will use in education and the organizational structure. Dewey prepared a detailed report on the country and sent his report after returning to the USA. In the report, he stated that most of the Turkish community lives in the rural areas, and reported that the training of teachers equipped with the information that people living in villages need would accelerate development. Dewey's report was based on a progressive philosophy and learning by doing and gave direction to the country's education and training and brought life to school, and as a result, community centers and village institutes were opened (Gökalp, 2020). Dewey's report also contributed to the development of primary education programs.

Until the 1950s, the curriculum development studies in the country were mostly planned as a list of units, courses and topics. Then, with the report prepared by K. V. Wofford, who came to our country in 1952 and conducted studies in schools, especially in village schools, the policy of curriculum programs was replaced by the policy of curriculum (Demirel, 2015).

In 1953, the National Education Council convened and the draft of the primary education law, the planning of primary education programs, teacher training policies, the new curricula of village institutes and teacher schools, and especially the revision of primary education programs were discussed.

In the 1960s, the studies focused on primary education programs, and in the 1970s, the trial of eight-year primary schools and program work came to the fore (Karacaoğlu, 2020).

In the 1980s, it was decided to create a model by working on the determined curriculum development models and to plan the curriculum according to this model by collaborating with the academicians working at the universities. This scientifically has been a crucial step taken in the development of the curriculum of the courses and even in the curriculum development studies.

In 1981, Law No. 2547 on Higher Education was enacted, and following this law, schools, institutes, academies and faculties that train teachers under the Ministry of National Education and universities were attached to Higher Education on 20 July 1982 and gathered under the roof or within the body of universities.

The Apprenticeship and Vocational Education Law No. 3308, which was published and entered into force in 1986, stipulated the establishment of

a Vocational and Technical Education Research and Development Center. The task area of the Vocational and Technical Education Research and Development Center is grouped under 6 headings:

1. *Curriculum Development*: To develop, implement and evaluate programs based on the latest developments in technology. Developing in-service training so that teachers can teach new curricula.
2. *Research and Planning*: Evaluating the statistical data it collects, determining the needs of the industry in terms of qualified workforce and making recommendations to the SPO on the main topics to be included in the five-year development plans based on this information.
3. *Design Development*: Preparing projects for vocational and technical school students, including cost analysis and material, equipment and laboratory specifications.
4. *Assessment and Evaluation*: Developing, implementing and evaluating standard aptitude, achievement and professional aptitude tests. To organize training courses on the administration and development of these tests. Establishing the mastery certification system in cooperation with the industry sector.
5. *Technical Publications*: To have approved technical periodicals, books and other teaching materials translated, printed and distributed throughout the country.
6. *Education Technology*: To prepare the necessary materials and evaluate the methods for the application of modern technology in the classroom. Giving training courses and organizing seminars on educational technology (MEB, 1998).

By the 1990s, since the curriculum development studies have come a long way, special importance has been given to the assessment and evaluation studies, which are among the elements of the curriculum development studies.

In 2005, the Ministry of National Education decided to re-develop the curriculum. The developed curriculum is a constructivist approach, not rote-based, teacher-guided and it includes critical and objective thinking, research-based, examining and questioning, individual learning. It is a program model in which the student is active in the lesson. However, in this program model, although the teacher does not interfere with the student too much, s/he is the person who guides the student, intervenes immediately when the student learns something wrong, directs the student to the correct information and implements the program.

The historical development of curriculum development in education primarily gives information about the historical flow of curriculum development studies throughout the country and the world, how the curriculums were affected by which countries and which scientists, and how the curriculum was developed by which methods.

### **3. Sociological Foundations of Curriculum Development in Education**

While developing curriculums related to the lessons to be taught in schools, the needs, problems and expectations of the child, the individual, or the society in which the student lives are taken into consideration. The values, beliefs and norms of a society are passed on to other generations not only by teaching them but also by explaining them in the functioning of the education system. (Demirel, 2015). It can be said that socialization and schooling gained momentum after the industrial revolution. With the industrial revolution, in the education and training of the schools opened in the industrial zones, pieces of training were given on the installation or failure of the machines used in the industries. This education system did not affect the socialization of the child much. However, over time, socialization of the child came to the fore in schools opened in and outside industrial zones, and thanks to the developed education programs, it was ensured that children began to take shape socially.

The most important of the cornerstones that make up a society are the individuals that make up that society. If individuals from the society, affect the development of societies, meet the deficiencies, problems and needs of the society, then the individuals forming the society should receive a good education. The most important institution in which individuals receive core education is schools (Baş & Sarıgöz, 2018). Schools are institutions that educate individuals who are not excluded from society and can adapt to society in such matters as the needs of society, cultures, customs, traditions and etiquette. Then there must be a connection or relationship between the school and society, and the educational programs that will be developed for the education of the individual cannot be considered separate from the concepts of socialization.

#### ***3.1. Regulation of School-Society Relationship***

The most important individual elements that make up a school are administrators, teachers, students and parents. There should be close cooperation between administrators, parents, teachers and students to achieve success in all kinds of activities that may benefit both the school and the students in the school. A

school is affected by the society and environment in which it is. When activities that society will not welcome are held in schools, conflicts between the school and the surrounding society will be inevitable. In that case, the activities to be carried out in schools should be of a nature that can be accepted by the neighborhood in which the school is located.

School and community relations and the planning of these relations are usually through activities. According to Demirel (2015), these activities are carried out with the following techniques;

1. The school introduces itself to society through activities and gets to know society well.,
2. Ensuring strong school-family cooperation,
3. Turning the school into a community center,
4. Utilizing community resources in educational activities,
5. Examining the extent to which the needs of younger generations are met at school.

While all these activities are being done or planned, the cooperation of the administrators, especially the school administrator, teachers, parent-teacher association members and parents is required. If necessary, students can be added to this cooperation group.

Students educated in schools will become members of the societies they live in in the future. Therefore, these students should be trained according to the needs of the society, that is, according to the occupational group in which the society wants staff, they should be trained to meet the expectations of the individuals of the society, and they should be trained to solve these problems if there are various problems in the society. The tasks of the curriculum development process within the scope of social foundations can be listed as follows:

1. Its aim is the development of students in psychological, moral, social and cultural issues within their customs.
2. It strives to raise students as individuals who know their responsibilities and rights and are compatible with their environment.
3. It is sensitive to the problems that society cares about such as blood feud, polygamy, abduction, ethnic differences, ideological movements and conflicts.
4. It is sensitive to the problems of disabled and high-qualified students.
5. It accepts that democracy requires mutual duties and responsibilities among individuals and that individuals have duties as well as rights in democracies.

6. It gives importance to the development of awareness of respect for human rights.
7. It makes efforts in the field of personality development education.
8. It sees sports as a means of socialization.
9. It can be associated with functionality and employment opportunities (Yetkin & Daşcan, 2008; Karacaoğlu, 2020).

As it can be understood from the articles, social needs, problems, expectations, needs, facts, in short, all such subjects are within the scope of the curriculum. Thus, curricula and education programs are developed or rearranged according to the expectations of society.

#### **4. Philosophical Foundations of Curriculum Development in Education**

Philosophy is derived from the words love and wisdom. It means the search for knowledge, the love of reason, the love of wisdom. Philosophy is thinking. It can be said that the pioneers of philosophy, whose foundations date back to ancient Greece, were Socrates, Plato and Aristotle. Philosophy is the planning, creating, or developing the best education by using the mind and thinking when it is considered in the educational dimension. One of the aims of education is to educate the individual by using the mind and thinking (Yavaş, Aygün & Ulak, 2021). So, the main purpose of education is to enable all students to educate themselves by using their minds and thinking. Therefore, education and philosophy form an intertwined and spiral structure (Sarigöz, 2020). Philosophy has a great influence on the solution of problems encountered in education. In curriculum development, first of all, the philosophy of the program to be developed must be determined. The basic philosophy here is whether the program will be teacher-centered or student-centered while the program is being developed. 4 educational philosophies have radically affected education: Perennialism, Essentialism, Progressivism and Reconstructionism.

##### **4.1. Perennialism**

Perennialism is an approach that brings the mind to the fore and sees the best and most important aspect of the human being as the mind when looking at one's nature. Perennialism is influenced by scholastic thought along with realism and idealism. According to this approach, there is an ore (idea, substance) in the universe that is absolute, unchanging and is the essence of everything (Sönmez, 2015). According to perennials, human nature, values and knowledge are

permanent, that is, human nature never changes. According to this movement, in schools, students should be taught information, rules and theories whose unchanging and eternal truth will continue because it is this information that makes people human. (Cevizci, 2016).

According to the concept of perennialism, the individual is human first and the source of true knowledge is the mind. A person can reach reality thanks to his mind. The purpose of education is to make the human mind active. An education program should be planned logically, the programs should be prepared by considering philosophy, mathematics and theological sciences, so the curriculum should develop the mental and spiritual potential of the individual. In this sense, developing the mind and will of man, adapting/directing the universal and unchangeable reality (divine mind) not the world he lives in, using the rules of the mind correctly and effectively, to think deductively, to be free and responsible, not to imitate life and to prepare for it is the basis of perennialist education. (Ercan, 2009). It is aimed to develop students' abstract thinking skills by teaching postulates, axioms and theories, and mathematical thinking through mathematics lessons. Philosophy is important in these curricula as it is a thinking activity in itself (Sarığöz, 2018). In addition, according to the perennialist approach, the subjects of all courses should be taught in order and the courses should support each other. (Sönmez, 2015; Cevizci, 2016).

In perennialism, not only cognitive development is important, but also affective development. For this reason, art-related courses, especially literature and history courses that will develop the individual's affective field, should be given to individuals, thus cultural transfer should be ensured. Especially in the history lesson, biographies of the great heroes who lived in the past should be taught and affective skills should be developed in this way. There must be modern and classical language education at all levels of education (Sönmez, 2015; Demirel & Kaya, 2009). In perennialism, especially schools are an important factor in transferring the cultures of societies and they should fulfill their duties. Thus, the continuity of the cultures of the societies should be ensured through education.

Perennialists have been subjected to a lot of criticism because they have adopted a strict understanding of education. Since the perennialism puts the teacher in the center, it accepts the teacher as the only authority in the classroom. It can also be said that because of such attitudes of perennialism, destroys the desire of the society to make democratic reforms (Saylan, 2016). Since the perennialism approach does not center on the student, it is not possible to talk about the student's right to choose and speak in the classroom.

## 4.2. *Essentialism*

The basis of essentialism education is based on ancient Greece. It is also called substantialism. It is among the most accepted and applied approaches in the world. Influenced by idealism and realism, it has similar points with perennialism in terms of knowledge. In both approaches, knowledge is constant and absolute. Due to this structure, essentialism is against the philosophical approaches of naturalism, pragmatism and existentialism (Sönmez, 2015). According to essentialism, the source of social conflicts is mostly changing, and in order to avoid conflicts, one should not try to change the society and protect the science, art, culture, traditions and cultural heritages that are the heritage of the society. According to essentialism, education aims to transfer the values encountered in daily life to the individual. That is to say, it is to transfer these experiences and values to the next generations by adding our own experiences on top of the experiences from the past.

Essentialism argues that an individual can achieve absolute and accurate knowledge through experimentation, observation, and reasoning activities. There is a prevailing opinion that knowledge can only be reached by combining facts, in other words, by an inductive method (Saylan, 2016). Essentialism argues that the most important element in education should be the teacher, and according to this approach, the teacher is expected to be an expert, scientific and self-educated. It is expected that the teachers are also an expert in their fields and have improved themselves in terms of general culture and knows universal truths (Keskinkilic, 2007). It is among the duties of the teacher to increase the motivation in the lessons, to increase the interest in the lesson, or to provide it. The teacher is expected to know which teaching method to use and when and where it should be used (Sönmez, 2015).

According to essentialism, when individuals are born, they are as illiterate as a blank slate. Therefore, a difficult and disciplined process awaits them in terms of learning life-related information. Essentialists think that education should be given within a certain discipline (Keskinkilic, 2007). In this process, the teacher is still in charge of the task. The only task of the student is to listen to the lessons and memorize the information given by the teacher. According to this approach, students are not allowed to ask questions or participate in the lesson in any way (Sönmez, 2015). Essentialism is similar to progressive education approaches in that it believes that students have talents and abilities and that student interest is important for education (Keskinkilic, 2007).

According to essentialism, knowledge cannot be obtained by chance or by random methods. Thus, the courses should be arranged according to

a program, a certain logic, and previously determined purposes. To meet all these expectations, there is a need for a written curriculum. As in perennialist, essentialist education program is subject-centered and modern courses such as reading, writing and arithmetic at primary school level, language education, science such as mathematics, physics, chemistry and biology and foreign language at secondary school level should be included in the education programs (Saylan, 2016). However, it can be said that there is some flexibility when creating these programs in both perennialism and essentialism. This flexibility can vary depending on both the disruptions in the courses and the readiness levels of the students. However, another issue that should not be overlooked is that essentialism is teacher-centered, does not pay attention to individual differences, and recommends using methods such as learning the way of presentation, repetition, exercises and memorization during the lesson (Gutek, 2001). In addition, according to essentialism, since knowledge is in an abstract structure, methods such as problem solving activities are not used in education, but learning by doing should be applied to certain students under certain conditions, and it is also impossible to organize this method in a way that will affect the entire education program (Keskinılıç, 2007). According to most educators, the essentialism approach cannot meet the needs of the developing and changing world as desired due to its features. Because in some areas, it is contrary to perspectives such as the student's taking initiative, learning by doing, critical thinking and democracy in education. According to Alkan (1983), in essentialism, the development of students' critical thinking skills and participatory personalities necessary for democracy is constantly hindered, and teachers are asked to be constantly dependent on course content and authorities.

### **4.3. *Progressivism***

Progressivism was developed under the leadership of John Dewey in the United States in the 1900s as a reaction to the attitude, pressure and understanding of essentialism (Saylan, 2016). It is how the pragmatist philosophy led by Dewey is applied to education (Sözer, 2002). The main feature of the approach is to raise democratic and liberal individuals and societies. According to Sönmez (2015), the main goals of progressivism are principles such as being ready for change by constantly observing society and nature, keeping the society and the individual in balance, creating a democratic society, prioritizing experimentalism with trial and error, not accepting any information as absolute truth, raising lively, free, independent, sociable, creative, tolerant, conscious individuals, and accepting the useful as true.

According to the approach, facts and values are in a state of constant change. In particular, the changes in the views and structure of societies constantly change values. Since society, culture, values, customs and traditions are constantly changing, education must also change in order to keep up with this change. Therefore, students should also be prepared for these changes that will affect the life of the individual. Thus, countries should prepare their curricula according to this change in terms of purpose, content, method, technique, principles and educational status. Because, according to progressivists, school is not a preparation for life, but life itself. For this reason, there should be cooperation and assistance in schools, schools should be developed in every field and they should be perfectly equipped in every sense. In schools, students should be encouraged to learn by collaborating rather than competing with each other (Kneller, 1964).

According to this approach, free-thinking and free-acting students should be raised in schools. Students should also participate in the process, especially while the curriculum is being prepared. Attention should be paid to the opinions and thoughts of students. Because the students are involved in the educational process. Progressivism opposes the partitioning and teaching of knowledge according to subject areas when the subjects are covered. Dec the human mind is a whole and establishes a connection between information (Sönmez, 2015). Therefore, curricula should be taught according to the principle of integrity and in a spiral structure, with all disciplines related to each other. Students should be taught not only the information in the curriculum or the book, but also more than the information determined when it is needed. In other words, all kinds of knowledge should be taught in schools. Whatever professions there are in life and whatever problems there are to be encountered, they should all be taught in schools so that the student can get acquainted with life. Because the subjects that will be taught in schools are not a goal, but a tool for life. Since the progressive approach serves the student, it is essentially a student-centered approach. In addition, the progressivism approach completely rejects teacher-centered education and requires teachers to guide only students (Kop, 2004). According to this approach, students participate directly in education, and they learn directly by observing and evaluating nature and events, in other words, through experiences (Cooney et al., 1993). The course contents to be taught according to progressivism should be teachings based on knowledge, skills and behaviors that attract the attention of the student and can use them at any time in life.

According to progressivism, learning environments at school should be arranged according to the student and the methods to be used. According to Sönmez (2015), the educational environments that will be organized according to progressivism are where trial-error, deduction and induction methods will be used together, emphasis is placed on practice, scientific methods are used and taught and it should be designed as democratic environments in which the project technique is used with the cooperation method and where students can express their thoughts without fear and criticize others. In short, it is an assumption of progressivism to place a democratic culture at the center of education and to allow students to internalize democratic life while they are still at school (Yayla, 2015). Therefore, the progressivism approach is used by many societies.

#### **4.4. Reconstructionism**

Reconstructionism is based on pragmatist philosophy and is one of the last developing movements as a continuation of the progressivism movement. After a disaster such as the second world war, people developed the idea that it is necessary to get rid of conflicting values, only in this way the end of humanity can be prevented and increase the belief that races, colors, genders and creeds should be integrated into an international system of order (Sönmez, 2015). Due to these needs, it arose with the aim of re-establishing or building society to overcome the cultural problems of those times. To fill the gaps arising in the progressivism approach in the face of this new situation, those who followed Dewey have put forward a new movement called reconstructionism (Saylan, 2016).

This movement assumes that the dizzying developments in science and technology pave the way for cultural crises in western civilization, as a result of which there are social depressions and such a situation threatens the future of humanity (Yayla, 2015: 40). According to reconstructivists, the right thing to do to achieve real democracy is to constantly reorganize and reshape society. The reconstructivists considered this theory as an effective tool for making social reforms in education (Demirel & Kaya, 2009). In the light of this information, the main goal of this approach is to create a new world order that is happy, peaceful, constantly changing, renewed, dynamic and peaceful. The expected improvement from people is to train individuals who can think scientifically and critically, who do not accept any information as absolute, constantly rebuild their lives, act wisely and can make plans before taking steps (Sönmez, 2015).

According to this approach, creating a society based on common values can only be achieved through education. According to this movement, although

the child, the school and the entire education to be given are determined by the society, the greatest responsibility for this change, both in the individual and in the society, is given to schools, students and education (Keskinç, 2007). According to reconstructivists, there is a strong relationship between school and society. This relationship significantly affects the mentality of the school and society. Students' social problems can be overcome by coming together with teachers and students in schools and through mutual communication. In other words, schools are not places where problems are analyzed and evaluated, but rather places where solutions are produced and actions are taken with teachers and students (Büyükdüvenci, 1987). This approach does not ignore events and phenomena such as gender, ethnicity and religious discrimination, poverty, environmental events, wars, economic gaps between classes and political pressures that cause social problems but shows ways to solve these problems.

According to the approach, the teacher should be self-educated, an expert in his field. He should also know and actively use high-level thinking skills. The teacher should be able to use scientific methods and especially all kinds of methods that will develop critical thinking and should be able to create environments where they can discuss all kinds of thoughts, theories and arguments that can achieve the goal of education in a democratic environment (Sönmez, 2015). According to this approach, students should be allowed to express their thoughts in democratic environments and to freely criticize any idea formed in the classroom environment, and students should raise awareness of social problems and be allowed to make solutions to these social problems using scientific methods. According to this approach, the student should be active in the classroom and the lessons should be based on practice rather than theory.

## **5. Psychological Foundations of Curriculum Development in Education**

The main purpose of education is to bring about a positive behavioral change in the individual. Psychology, on the other hand, investigates the cause of behavioral changes of the individual. Based on these two ideas, scientists have developed the field of educational psychology by combining these two ideas. When education is viewed from a human-centered perspective, the first thing that comes to mind is the individual and their behaviors. Since all curriculum development studies are based on students and their behaviors, getting to know the individual and making programs according to his/her behavior is a very important issue for curriculum developers. Curricula are specially planned according to the age, maturity, growth, understanding and readiness of the

individual. Because getting the student to comprehend the content effectively can only be done by getting to know the student. Psychology is related to curriculum development, from the readiness of the person to the content of the program and even the way the subjects to be learned are applied (Gökçalp, 2020). How students can learn in different environments, that is, how the environment should be, is also within the field of educational psychology.

Psychology studies humans and animals, in short, living things. Educational psychology, on the other hand, is directing individuals to specific goals through cognitive, affective and psychomotor training. In addition, the psychological basis of curriculum development in education consists of situations such as how learning occurs in the mind, what or how to teach an individual, and how the individual learns. Curriculum development guides the education programs in subjects such as how to teach, when and what to teach the most, what stage the individual's mental development is at what age, which physical movements and behaviors should be taught at what age. In this regard, curriculum development studies also get help from developmental psychology and learning psychology, which are sub-branches of psychology.

### ***5.1. Developmental Psychology***

Developmental psychology examines the personality development and change from the cradle to the grave, from birth to death, that is, from the beginning to the end of human life, in terms of cognitive, affective, psychomotor and social aspects. Therefore, the growth, development and maturation of the individual fall within the field of developmental psychology. While developing curricula, the subject of developmental psychology is how much the individuals develop at what age, matures and how much they can understand. Developmental psychology guides the development level of the individual in curriculum development studies and what and when he or she can understand mentally, physically and spiritually.

### ***5.2. Psychology of Learning***

The psychology of learning deals with the conditions under which learning can take place most effectively, how the learning process should be or how it will improve, and what the principles of learning should be. In short, it is a sub-branch of educational psychology that tries to explain how learning occurs. In the psychology of learning, theorists first develop various theories and principles and then try to determine how to apply these theories or principles most effectively. Among the topics that are used in the development of curricula are

how to reach the goals, how to teach the content, which methods and techniques and which theories and principles should be used in the learning-teaching process.

## **6. Subject Area Foundations of Curriculum Development in Education**

For the individual to obtain the learning outcome in education and training, there must be subjects that are determined for the learning outcome and that need to be covered in the courses. These topics and the learning of these topics form the basis of the subject area of curriculum development. The subjects to be learned or taught, which are also called content also guide the curriculum. In curriculum, goals, objectives and achievements are determined according to needs (Karacaoğlu, 2020). In determining these needs, the needs of the individual, society and subject area should be taken into account.

One of the topics that most interests the subject area in the program is the content issue, which is the answer to the question of what to teach. The content to be selected while developing the curriculum should consist of topics that can withstand changes for a long time. In curriculum development, the distribution of the subjects according to the characteristics of the schools and the level of the students forms the basis of the subject area (Gökalp, 2020). When determining topics according to target behaviors, they should be determined and sorted according to certain basic characteristics.

The behaviors to be selected related to the subject area should be scientific, far from superstitions, up-to-date and implementable. Since the world is in a state of change and is constantly evolving, information is constantly evolving and updated. For this reason, while developing curricula, should be developed according to current issues and by evaluating the latest information. While the curriculum is developed according to the subject area, it should be developed scientifically and using proven knowledge by repeatedly verifying them. In addition, while determining the topics in curriculum development, they should be determined following the goals or in a way that can reach the goals, and the difficulty of the topics should be arranged following the readiness level of the students.

As a result, thoughts on the scientific fields to be taught must be reflected in the goals. According to Sönmez (2005), a thesis with high validity and reliability should be used in solving problems encountered in the subject area. In addition, consistent relationships should also be established between the subject area and the objectives for the curriculum to be developed to meet the needs of both the individual and the society.

## 7. Anthropological Foundations of Curriculum Development in Education

The first thing that comes to mind when it comes to teaching activities is the individual. The purpose of curriculum development is to educate or train the individual. Therefore, anthropological foundations can be called the most basic element of curriculum development. Because curriculum development efforts are already individually planned. All elements of the curriculum are determined and planned according to the target, content, educational background and evaluation of the individual. Curriculum development studies are determined according to the individual's recognition and needs. The needs of the individual form the basis for the creation of goals and the development of the curriculum (Karacaoğlu, 2020). Curriculum development studies are developed by trying to determine the current life, future life and needs of the individual. Since curriculum development studies cover all of the individual's life and learning, they guide the individual from school age and shape the individual's life. One of the main purposes of curriculum development on the individual is to help the individual how to solve the problems that s/he will encounter throughout her/his life, that is, to guide the individual. For this reason, the skills that the individual will need should be given in schools through curriculum development. Curriculum development is a guide that tries to teach the individual how to learn, how to deal with problems, how to educate oneself in every sense. According to Yetkin & Daşcan (2008), curriculum development studies accept that each individual is special, instills happiness and the pleasure of success, guides the individual, enables the individual to develop all kinds of qualities, it ensures that individual is qualified in cognitive, affective and psychomotor sense and cares about learning to learn.

The differences between generations within 21st-century increase due to rapid changes in the world, thus, the understanding, expectations, and learning styles of each new generation differ from the previous one. As of 2020, the X and Y generations in current working life are thought to leave gradually their positions to the consecutive Z and alpha generations equipped with digital skills (McCrindle, 2021; 2014; Terzi & Boylu, 2019; Dumas, 2018; Digitalage, 2018; Keleş-Tayşır & Ülgen, 2017; Aka, 2017; Sterbenz, 2015). As for the educational field, the teachers in the upcoming years are thought to carry out the teaching activities in the class only with the students either coming from Z or Alpha generations. Therefore, the teachers' being able to recognize the changing characteristics, learning styles, and expectations of the Z and alpha generations is considered to be crucial (Bozak, 2021).

## 8. Economic Foundations of Curriculum Development in Education

Curricula are developed according to the human resources, underground and ground wealth of societies and their competencies. One of the goals of the curriculum is to raise qualified and skilled personnel for the country and to bring up conscious and productive individuals to the society at a low cost. The development and economic welfare of a country depending on the education level of the individuals living in the country. If the individual living in a country is a primary school graduate, the wage will be quite low, if the individual is a secondary school graduate, he will receive a little more than a primary school graduate, if he is a high school graduate, he will receive a little more than a secondary school graduate, if he is a university graduate, he will receive more wages than a high school graduate, and so on. As the education level of individuals living in the country increases, the wages that will go into the pocket of the individuals will increase, and the economic welfare of the country will improve as these wages increase. In that case, it can be said that education and economic development are interconnected, bidirectional and directly proportional.

Another issue in the country's economy is production. Production, trade, import and export are the areas managed by manpower. Raising these people can also be done through education. For this reason, countries plan to train qualified and competent individuals while developing their curricula. Another issue is the contribution of the country's economy to education. The better the economic situation of a country, the higher the share it will allocate to education, so the education level of the country will increase. Therefore, education supports the economy, and the economy supports education.

## 9. Conclusion, Discussion and Recommendations

Education programs constitute the basis of education systems. Therefore, the first thing countries need to do about their education is to develop education programs which are suitable for their cultural structures and economies especially modern and open to developments. When these education programs developed are implemented effectively in schools by expert teachers, children who shed light on the future of countries will also be raised properly. The education programs of the countries should also be developed in accordance with both the historical developments in these countries and the individual and philosophical foundations of the education programs. However, curriculum development studies in education require continuity. Thus, the programs developed or to be developed should be developed open to the modern world, modernization and innovations. For all these studies, the budget allocated from the national

economy for program development studies must also be at a sufficient level because the education level of the individuals of the country, which has a well-developed and modern education program, is also high. Since the education level of individuals is directly proportional to the economy of the country, the economies of countries with well-educated individuals is also developed. That is to say, countries that want to have a strong and good economy need to allocate a sufficient share of their budgets to program development studies. With the training programs, these shares allocated from the budget will definitely return to the budget in time.

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## CHAPTER 7

# MEDIATOR ROLE OF AUTOMATIC THOUGHTS IN THE RELATIONSHIP BETWEEN PSYCHOLOGICAL RESILIENCE AND SOCIAL-EMOTIONAL LEARNING SKILLS\*

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### 1. Introduction

It is expected from today's schools to prepare students for life, besides the academic development. The conventional education is based on the cognitive development and academic success but this perspective is not functioning effectively in today's world (Black, 2021). Today's children are experiencing a complex life, social media is gaining importance as new socialization agent, as a result it leads a failure in social and emotional skills of children and adolescents (Weissberg et. al., 2015). Accordingly, many students are not adequate for coping with real life stressors when they exit the education systems. Therefore, today's schools became important mediators in promoting the social and emotional skills of students (OECD, 2015), and social and emotional learning has become more central in schools (Mahoney, Weissberg, & Greenberg, et. al., 2021) as well as has become an important subject area for contemporary research.

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\* This study is based on the Master's thesis of the first autor under the supervision of the second autor.

Social and emotional learning, is a conceptual framework enhancing the social, emotional and academic abilities of individuals (Weissberg et. al., 2015). Different terms are used in the literature to indicate social and emotional abilities of individuals. These terms are namely, social competence, social-awareness, social problem solving, emotional intelligence, and social and emotional learning (McKenzie, 2005). Social and emotional learning skills enhance personal development, enhance to understand and manage emotions, setting goals and acting for the goals, caring for others, having good interpersonal relationships and taking responsible decisions. Social and emotional learning involves self-awareness, self-management, social awareness, relationship skills and responsible decision making (Weissberg et. al., 2015). Thus, today's schools are expected to develop social and emotional skills of their students besides academic skills. Individuals are exposed to many stressful situations in life. Psychological resilience is the recovery and adaptation capacity of an individual in the face of a stressful situation (Garmezy, 1991, p. 459). Resilience has an important role as a motivational-affective variable, in academic life and for the fulfilment of academic and personal goals (de la Fuente, Fernandez-Cabezas, Cambil, Vera, Gonzales-Torres, & Artuch-Garde, 2017). Resilience is considered as a meta-motivational variable which regulates motivation (de la Fuente et.al., 2017). The learning process involves a great deal of motivation, resilience as a motivational variable (de la Fuente et.al., 2017) may be a predictive factor on the acquisition of social-emotional learning skills, therefore first aim of the study is to examine the role of resilience in predicting social emotional learning skills.

Childhood and pre-adolescent experiences are effective in forming some basic thoughts and beliefs. Cognitive schemas that occur during this period shape the individual's self-perception. Furthermore, these schemes reveal automatic thoughts if they are strongly pronounced in a life event (Schniering & Rapee, 2002). Automatic thoughts can be defined as spontaneously formulated concrete thoughts, even if they do not agree with objective reality (Haaga, Dyck & Ernst, 1991). Dysfunctional beliefs cause cognitive errors. Cognitive errors occur as individual bias distortions in the processing of information. At the same time, cognitive errors lead to automatic thoughts that are unsuitable with the real situation due to the wrong processing of information that distress the individual in various aspects (Beck, 2005; Türkçapar, 2008). In this context, it is hypothesized in this research that the cognitive distortions used by the students have a preventive role in gaining social emotional learning skills. It is evident that successful and happy people have a strong sense of self-perception and can put functional solutions in case of negative situations. Positive self-perception and efficient problem-

solving skills are significant characteristics of individuals with high psychological resilience (Werner & Smith, 1992). Individuals with high psychological resilience are expected to have less irrational and negative thoughts. Kaya (2015) found out a negative relationship between psychological resilience level and negative automatic thoughts. However, in Kaya’s (2015) study, unlike this one, negative automatic thoughts were considered as one of the predictors of psychological resilience. One of the main hypotheses of this study is psychological resilience as an important trait will activate negative automatic thoughts less.

Along with the above discussed literature the basic hypothesis of the study is that psychologically resilient students, who can control their negative automatic thoughts will develop social and emotional learning skills more easily. Accordingly, the main purpose of the study is to examine the mediating role of automatic thoughts in the relationship between psychological resilience and social emotional learning skills.

**2. Method**

Purpose of the study is to examine the relationship between the social emotional learning skills, psychological resilience and automatic thoughts of secondary school students. Within the scope of the research, a model was proposed and tested. In the model, social emotional learning skills were determined as the latent variable (main dependent variable). The psychological resilience variable is included in the model, in line with our hypothesis that, psychological resiliency predicts social emotional learning skills directly and indirectly through automatic thoughts. The conceptual structure of the model that will be tested is shown in Figure 1.

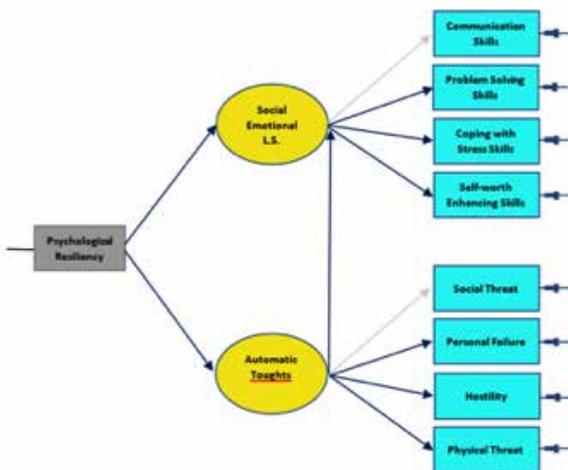


Figure 1. Path Analysis for the Social-Emotional Learning Skills

## **2.1. Participants**

The study is conducted on secondary school students in three districts of İstanbul. The sample consisted of 1006 students (56,1%boys, 43,9 %girls; participants ages range between 11-15), recruited from six secondary schools at Beylikdüzü, Esenyurt and Büyükçekmece. 34.7% (n = 349) of the students who participated in the study were living in Beylikdüzü, 32.9% (n = 331) in Esenyurt, 32.4% (n = 326) in Büyükçekmece district. 33.7% (n = 339) of the students were at sixth grade, 34.2% (n = 344) were at seventh grade, and 32.1% (n = 323) were at eighth grade.

## **2.2. Measures**

The data of this study was collected via Child and Adolescent Psychological Resilience Scale (CAPRS), the Social Emotional Learning Skills Scale (SELSS), the Children's Automatic Thoughts Scale (CATS) and the Demographic Information Form.

### **2.2.1. Child and Adolescent Psychological Resilience Scale (CAPRS)**

The original form was developed by Liebenberg, Ungar, and Van de Vijver (2012) and was transformed into a 12-item short form, after being edited by Liebenberg, Ungar, and LeBlanc (2013). Scores are varied between 12 and 60. This is a 5-point Likert type scale. The factor loading values of the items vary between 0.39 and 0.88. Turkish adaptation of the scale was carried out by Arslan (2015b). For this study, the Cronbach alpha reliability coefficient of the scale was found to be 0.74.

### **2.2.2. Social-Emotional Learning Skills Scale (SELSS)**

SELSS was developed by Kabakçı and Korkut Owen (2010). There are 40 items collected in four dimensions. The items are graded in a 4-point Likert type. The sub-dimensions of the scale are named as communication skills (9 items), problem solving skills (11 items), coping with stress skills (10 items) and self-worth enhancing skills (10 items). High scores obtained from the scale show that the skills of the individuals in these dimensions are high. Factor loading values of the items varied between 0.38 and 0.72. Test-retest correlation coefficients were found to vary between 0.69 and 0.85.

For this research the Cronbach's alpha reliability coefficient was calculated 0.69 for communication skills; 0.81 for problem solving skills; 0.71 for stress coping skills; It was found to be 0.80 for skills that increase self-worth. Cronbach

alpha reliability coefficient was calculated as 0.89 for a total of 40 items in the social emotional learning skills scale.

### **2.2.3. Children's Automatic Thoughts Scale (CATS)**

In order to determine the automatic thinking levels of secondary school students CATS was used this scale is developed by Schniering and Rapee (2002) and adapted into Turkish by Ergin and Kapçı (2013). There are 40 items collected in four dimensions (Ergin & Kapçı, 2013). Factor loading values of the items varied between 0.32 and 0.80. Cronbach alpha reliability coefficient is calculated as 0.85; 0.86; 0.84; and 0.80 for total scale. The test-retest reliability coefficient is calculated as 0.88; 0.91; 0.89; 0.91 and 0.90 for the total scale.

For the present study, the Cronbach's alpha reliability coefficient was 0.77 for social threat; 0.75 for personal failure; 0.83 for hostility; it is calculated as 0.81 for physical threat. The Cronbach alpha reliability coefficient of all items in the scale was calculated as 0.92.

### **2.2.4. Demographic Information Form**

A demographic Information Form was prepared in order to obtain information about the gender, age, class level, perceived economic situation and where participants live.

## **2.3. Procedure and analyzes**

Participation in the research is based on parental consent and student volunteerism. To collect the data, necessary permissions were obtained from the Ministry of National Education the last version of demographic information form was revised by the restrictions of Ministry of National Education. Parents who accepted their child to participate in the study were asked to sign the "Parent Approval Form" and the students who accepted to participate in the study to sign the "Voluntary Consent Form". They were both informed about the study and received written approvals for participation. Data was collected in classroom setting, it took about 25 minutes.

The data analyzes were started with the examination of the assumptions. Statistical analyzes were made through the package programs for social sciences. Structural equation modeling was calculated in order to explain the social emotional learning skills of the students. Structural equation modeling is a multivariate statistical model and there are assumptions of sample size, extreme value, linearity and covariance, normality, multicollinearity, missing

data (Schumacker & Lomax, 2004). The analysis of the assumptions started with the data of 1083 students, and it was determined that the obtained sample size was sufficient for the analysis. As a result of the sampling calculations, it is determined that 302 students should represent 6th grade students ( $N=1414$ ), 301 students represent 7th grade students ( $N=1394$ ); and it was determined that 299 students should represent 8th grades ( $N=1358$ ). Within the research, a total of 1083 students were reached by considering the grade levels. Univariate extreme value analysis was carried out with z statistics and box plots, 72 data showing univariate extreme values were removed from the observation set.

Five observations showing multivariate extreme values calculated by Mahalanobis distance were removed from the data set also. Histogram graphics were examined for the assumption of normality of the variables. Skewness-kurtosis coefficients were calculated, it was determined that the coefficients took values between -1 and +1, and it was determined that the variables did not show excessive deviation from the normal.

Correlation coefficients were calculated in order to examine the multiple relations and singularity between variables, and it was determined that the significant correlation coefficients ranged from -0.12 to 0.79, so there was no multiple correlation. As a result of the Box's M and Levene tests calculated for the covariance assumption, it was determined that the variances of the variables were homogeneous and the assumptions were met.

As a result of the data cleaning, the data was analyzed in line with 1006 participants who remained in the data set. Descriptive statistics were calculated. Pearson correlation coefficient was calculated in order to determine the relationships between variables. Structural equation modeling was also established to explain the social emotional learning skills of students.

### **3. Results**

#### ***3.1. Descriptive Analyses***

Descriptive analyses of SELSS are examined. The scores of the communication skills sub-dimension vary between 15.00 and 36.00 and the average is calculated as 28.54 ( $\pm 4.32$ ). The scores of problem-solving, skills dimension vary between 19.00 and 44.00 and the average point is 35.88 ( $\pm 5.19$ ). The scores of coping skills varied between 11.00 and 40.00 and the average was calculated as 25.72 ( $\pm 5.32$ ). Self-worth enhancing skills are ranged from 23.00 to 40.00 and the average was calculated as 35.65 ( $\pm 3.97$ ). SELSS total scores varied between 78.00 and 160.00 and the average was 125.79 ( $\pm 14.54$ ). According to these results it can be said that students' social emotional learning skills are at high level.

Scores obtained from the psychological resilience scale are examined, it is seen that the scores range between 31.00 and 60.00. The average of the scores was calculated as 51.00 ( $\pm 5.76$ ). These results put out a high level of psychological resilience among participants.

Descriptive analyses of CATS scores put out that scores of social threat dimension vary between 0.00 and 19.00. The highest score in the social threat sub-scale is 19.00 out of 40, and the average score is 5.34 ( $\pm 5.06$ ). personal failure scores differ between 0,00 and 17,00 with an average of 5,05 ( $\pm 4,88$ ). Scores obtained from hostility subscale vary between 0,00 and 40,00 with a mean score of 13,50 ( $\pm 8,56$ ). Physical threat scores vary between 0,00 and 24,00 the mean is calculated as 7,12 ( $\pm 6,72$ ). CATS total point scores vary between 0.00 and 93.00, with an average of 31.02 ( $\pm 20.97$ ). Regarding to these values it can be said automatic thought levels of the students are quite low in terms of both sub-dimensions and total scores.

Pearson correlation coefficient was calculated to determine the relationships between students' social emotional learning skills, automatic thinking and psychological resilience. The results are shown in Table 1.

Table 1 Correlations between SELSS, CATS and Psychological Resilience

Variable	Values	Automatic Thoughts	Psychological Resilience
Social Emotional Learning Skills (Total Score)	<i>r</i>	-,323(**)	,631(**)
	<i>p</i>	,000	,000
	<i>N</i>	1006	1006
Automatic Thoughts Scale (Total Score)	<i>r</i>		-,375(**)
	<i>p</i>		,000
	<i>N</i>		1006

\* $p < 0,05$ ; \*\* $p < 0,01$

Significant relationships are found between social emotional learning skills, automatic thoughts and psychological resilience. As seen in Table 1 there is a negative and moderate relationship between students' social emotional learning skills and automatic thoughts ( $r = -0.32$ ;  $p < 0.01$ ). There is a positive and moderate relationship between social emotional learning skills and psychological resilience ( $r = 0.63$ ;  $p < 0.01$ ). And There is a negative and moderate relationship between students' automatic thoughts and their psychological resilience ( $r = -0.38$ ;  $p < 0.01$ ).

Pearson correlation coefficient were also calculated to determine the relationships between the psychological resilience of students and their social emotional learning skills sub-dimension scores. Results are shown in Table 2.

Table 2 Correlations between psychological resilience and sub-scales of SELSS and CATS

Sub-Scales	Values	Psychological Resilience
Communication Skills (SELSS)	<i>r</i>	,490(**)
	<i>p</i>	,000
	<i>N</i>	1006
Problem Solving Skills (SELSS)	<i>r</i>	,571(**)
	<i>p</i>	,000
	<i>N</i>	1006
Coping with Stress Skills (SELSS)	<i>r</i>	,374(**)
	<i>p</i>	,000
	<i>N</i>	1006
Self-Worth Enhancing Skills (SELSS)	<i>r</i>	,531(**)
	<i>p</i>	,000
	<i>N</i>	1006
Social Threat (CATS)	<i>r</i>	-,311(**)
	<i>p</i>	,000
	<i>N</i>	1006
Personal Failure (CATS)	<i>r</i>	-,376(**)
	<i>p</i>	,000
	<i>N</i>	1006
Hostility (CATS)	<i>r</i>	-,284(**)
	<i>p</i>	,000
	<i>N</i>	1006
Physical Threat (CATS)	<i>r</i>	-,300(**)
	<i>p</i>	,000
	<i>N</i>	1006

\* $p < 0,05$ ; \*\* $p < 0,01$

In Table.2, it is seen that there are negative significant correlations between the psychological resilience and sub-scales of SELSS. Resilience scale scores show negative moderate correlations with problem-solving skills ( $r = 0.57$ ;  $p < 0.01$ ), self-worth enhancing scales ( $r = 0.53$ ;  $p < 0.01$ ), communication skills ( $r = 0.49$ ;  $p < 0.01$ ), and stress coping skills ( $r = 0.37$ ;  $p < 0.01$ ).

It is seen also in Table.2 that there are moderate and negative correlations between psychological resilience and personal failure ( $r = -0.38$ ;  $p < 0.01$ ), social threat ( $r = -0.31$ ;  $p < 0.01$ ) and physical threat ( $r = -0.30$ ;  $p < 0.01$ ) thoughts. There is a negative and low-level relationship between the psychological resilience and hostility thoughts ( $r = -0.28$ ;  $p < 0.01$ ).

The Pearson correlations coefficient was calculated to determine the relationships between the SELSS sub-dimensions CATS sub-dimensions. Results are shown in Table 3.

Table 3 Correlations between SELSS sub-scales and CATS sub-scales

Sub-scales	Values	Social Threat	Personal Failure	Hostility	Physical Threat
Communication Skills	<i>r</i>	-,087(**)	-,123(**)	-,085(**)	-,037
	<i>p</i>	,006	,000	,007	,243
	<i>N</i>	1006	1006	1006	1006
Problem Solving Skills	<i>r</i>	-,203(**)	-,291(**)	-,231(**)	-,223(**)
	<i>p</i>	,000	,000	,000	,000
	<i>N</i>	1006	1006	1006	1006
Coping with Stress Skills	<i>r</i>	-,118(**)	-,179(**)	-,369(**)	-,191(**)
	<i>p</i>	,000	,000	,000	,000
	<i>N</i>	1006	1006	1006	1006
Self-worth Enhancing Skills	<i>r</i>	-,334(**)	-,400(**)	-,152(**)	-,305(**)
	<i>p</i>	,000	,000	,000	,000
	<i>N</i>	1006	1006	1006	1006

\* $p < 0,05$ ; \*\* $p < 0,01$

As seen in Table 3, there are negative low-level correlations between communication skills and personal failure ( $r = -0.12$ ;  $p < 0.01$ ), social threat ( $r = -0.09$ ;  $p < 0.01$ ), hostility ( $r = -0, 09$ ;  $p < 0.01$ ), it is seen that there are negative and low-level relationships between the thoughts. It was determined that there was no significant relationship between students' communication skills and physical threat thoughts ( $r = -0.04$ ;  $p < 0.01$ ). Negative and low-level correlations were

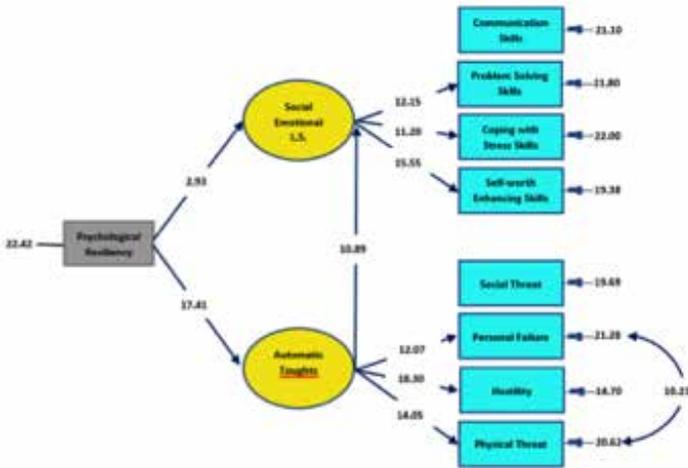
found between students’ problem-solving skills and personal failure ( $r = -0.291$ ;  $p < 0.01$ ), hostility ( $r = -0.23$ ;  $p < 0.01$ ), physical threat ( $r = -0.22$ ;  $p < 0.01$ ) and social threat thoughts ( $r = -0.20$ ;  $p < 0.01$ ).

Negative and moderate correlations were found between the stress coping skills and hostility thoughts ( $r = -0.37$ ;  $p < 0.01$ ). Students’ ability to cope with stress and physical threat ( $r = 0.19$ ;  $p < 0.01$ ), personal failure ( $r = -0.18$ ;  $p < 0.01$ ) and social threat ( $r = -0.12$ ;  $p < 0.01$ ) put out negative and low-level correlations.

Negative and moderate relationships are determined between self-worth enhancing skills, personal failure ( $r = -0.40$ ;  $p < 0.01$ ), social threat ( $r = -0.33$ ;  $p < 0.01$ ) and physical threat thoughts ( $r = -0.31$ ;  $p < 0.01$ ). It was found that there is a negative and low-level relationship between self-worth enhancing skills and hostility thoughts ( $r = -0.15$ ;  $p < 0.01$ ).

*3.2. Path Analysis to Explain Social Emotional Learning Skills of Students by Their Psychological Resilience (Direct and Indirect) and Automatic Thoughts (Direct)*

A path analysis model was formed and tested on the extent to which students’ social emotional learning skills are explained by their psychological resilience (direct and indirect) and automatic thoughts (directly). The diagram of the calculation process of the model depicted is shown in Figure 2.



Fit index Chi-Square=231.21, df=24, P-value=0.00000, RMSEA=0.070.

Figure 2. T-coefficients of Path Analysis to explain social emotional learning skills of students

After determining that all t values in the model are significant, the coefficients were examined and the path analysis diagram with standardized coefficients is shown in Figure 2.

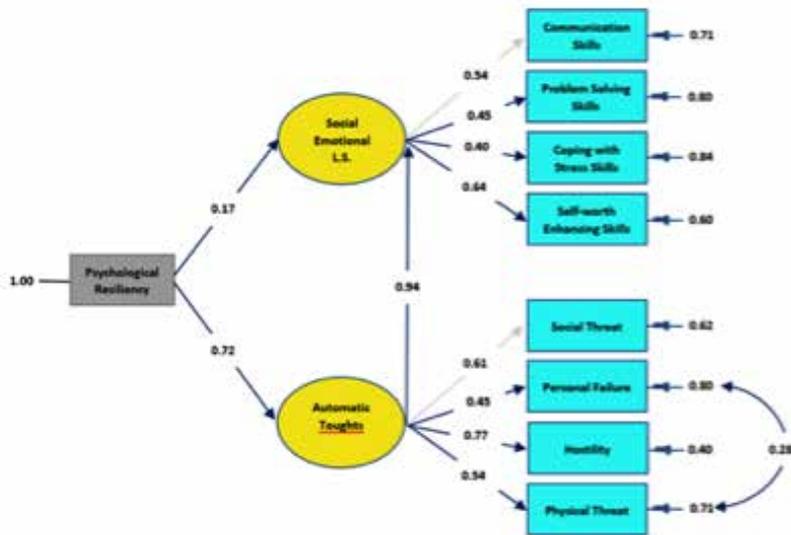


Figure 3. Path analysis-standardized coefficients explaining students’ social emotional learning skills

As seen in Figure 3, coefficients show moderate relations between social emotional learning skills and self-worth enhancing skills ( $\lambda = 0.64$ ), communication skills ( $\lambda = 0.54$ ), problem solving skills ( $\lambda = 0.45$ ) and stress coping skills ( $\lambda = 0.40$ ). If standardized factor load values are above 0.30 the variables should remain in the model. Similarly, coefficients for automatic thoughts and hostility ( $\lambda = 0.77$ ), social threat ( $\lambda = 0.61$ ), physical threat ( $\lambda = 0.54$ ) and personal threat thoughts ( $\lambda = 0.45$ ) are calculated and there are relations above 0.30. After examining the factor load values, the calculated values for each measurement equation are shown in Table 4.

Table 4 Model-measurement equations created to explain students' social emotional learning skills

Variable	B	Variable	Variance of Error	R <sup>2</sup>
Communication Skills	0,59	SELSS	0,78	0,31
Problem-Solving Skills	0,55	SELSS	1,35	0,19
Coping with Stress Skills	0,42	SELSS	0,82	0,17
Self-worth Enhancing Skills	0,94	SELSS	1,37	0,39
Social Threat	0,99	CATS	1,78	0,36
Personal Failure	0,77	CATS	1,74	0,26
Hostility	1,24	CATS	1,16	0,57
Physical Threat	0,78	CATS	1,19	0,34

Table 4 shows the results of the regression equations. According to these equations the beta coefficient of the communication skills in the equation is 0.59; error variance is 0.78 and the explanation amount for the variance in social emotional learning skills is 0.31. Since the regression coefficients are not standard, the square of the beta coefficient is not equal because variance-covariance matrix is used instead of correlation. Table.6 shows the contribution of subscales on total point of SELSS. Communication skills ( $R^2 = 0.31$ ;  $p < 0.05$ ), problem-solving skills ( $R^2 = 0.19$ ;  $p < 0.05$ ) coping with stress skills ( $R^2 = 0.17$ ;  $p < 0.05$ ), self-worth increasing skills ( $R^2 = 0.39$ ;  $p < 0.05$ ) were found to be significantly explaining total score of SELSS.

Similarly, in the equations established for the automatic thought levels of secondary school students, the beta coefficient for social threat thought is 0.99; the error variance is 1.78 and the regression coefficient is 0.36. CATS total scores were explained by social threat thoughts ( $R^2 = 0.36$ ;  $p < 0.05$ ), personal failure thoughts ( $R^2 = 0.26$ ;  $p < 0.05$ ), hostility thoughts ( $R^2 = 0.57$ ;  $p < 0.05$ ). 0.05) and physical threat thoughts ( $R^2 = 0.34$ ;  $p < 0.05$ ). In line with the proposed modification the error covariance for the personal failure and physical threat thoughts.

After analyzing the measurement equations in the model, structural equations were calculated. Results are given in Table 5.

Table 5 Model-structural equations to explain students' social emotional learning skills (direct explanations)

Variable	B	Variable	Variance of Error	R <sup>2</sup>
Automatic Thoughts	0,32	Psychological Resiliency	0,30	0,70
Social Emotional Learning Scales	0,27	Psychological Resiliency	0,52	0,48

As seen in Table 5, in the equation established to explain the level of automatic thoughts, the beta coefficient regarding the psychological resilience level is 0.32; error variance is 0.30 and regression coefficient is 0.70. For the equation established to explain social emotional learning skills, the beta coefficient of psychological resilience was calculated as 0.27, error variance as 0.52 and regression coefficient as 0.48. Accordingly, it can be said that, psychological resilience has a large effect size on automatic thoughts.

Table 6 Model-structural equations established to explain students' social emotional learning skills (Indirect Explanations)

Variable	B	B	variance of Error	R <sup>2</sup>
Social Emotional Learning Skills	0,95	0,067	0,17	0,97
	(automatic thoughts)	(psychological resiliency)		

As seen in Table 6, in the equation established to explain the latent variable of social emotional learning skills, the contribution of automatic thought to equality is 0.95; It is seen that the contribution of psychological resilience is 0.067. These two variables explain 97% of the variance in social emotional learning skills. In summary, it was determined that the psychological resilience of the students directly and indirectly (through automatic thinking) explains the social emotional learning levels of the students. It was determined that students' social emotional learning skills were significantly explained by scale sub-dimensions, psychological resilience and automatic thinking levels.

Fit indices were calculated in order to evaluate model. The results are shown in Table 7.

Table 7 Data fit indexes for the model established to explain students' automatic thoughts

Fit Index	Perfect Fit	Acceptable Fit	Model Values
$\chi^2/sd$	$0 \leq \chi^2/sd \leq 4$	$0 \leq \chi^2/sd \leq 5$	9,63
RMSEA	$0 \leq RMSEA \leq .05$	$.05 < RMSEA \leq .08$	0,070
NFI	$.95 \leq NFI \leq 1.00$	$.90 \leq NFI < .95$	0,95
NNFI	$.97 \leq NNFI \leq 1.00$	$.95 \leq NNFI < .97$	0,95
CFI	$.95 \leq CFI \leq 1.00$	$.90 \leq CFI < .95$	0,95
GFI	$.95 \leq GFI \leq 1.00$	$.90 \leq GFI < .95$	0,96

As seen in Table 7, in the model created, RMSEA, NNFI fit indices indicate that the model is acceptable, and NFI, CFI and GFI fit indices indicate that the model has a perfect fit.

It is acceptable for RMSEA and SRMR values to be between 0.08 and 0.05, while it is less than 0.05 indicates that there is a very good fit. With a GFI value of 0.85. Between 90; NFI, CFI, and IFI values between 0.90 and 1.00 indicates that there is a good fit (Byrne, 2010; Kline, 2011). The calculation of the  $\chi^2/sd$  fit value above the acceptable limit is due to large size of the sample (Kim, 2009; Sayın & Gelbal, 2016).

#### 4. Discussion and Conclusion

Research findings show a positive relationship between social emotional learning skills and psychological resilience of secondary school students. As expected there are negative relationships between automatic thoughts and social emotional learning skills, psychological resilience. Firstly, the relationship between psychological resilience and sub-dimensions of social-emotional learning skills, namely communication, coping with stress, problem-solving, and self-worth enhancing skills are discussed by the current literature. Payton et al. (2000, p. 180), states that individual's awareness of himself and others is related to the realistic awareness capacity of the individual's emotions, the capacity to regulate his emotions, the realistic perception of the individual's strengths and weaknesses. This refers to the capacity to receive and evaluate the perspectives of others. The present study revealed a positive relationship

between self-worth enhancing skills and psychological resilience. Önder and Gülay (2008) found out a positive and moderately significant relationship between eighth grade students' self-concept and psychological resilience levels, which is supported findings of the present study. Self-esteem and self-efficacy are related to psychological resilience (Gilligan, 2000; Miller & Daniel, 2007; Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). In the studies conducted by Arslan (2015a, p. 153) and Sarıkaya (2015, p. 78) with secondary and high school students, and Güloğlu and Kararımak (2010, p. 80) with university students, positive significant relationships between psychological resilience and self-esteem are determined. The findings of the present study revealed a positive relationship between psychological resilience and problem-solving skills which is in accordance with findings of Bernard (1995), Masten, Best, and Garmezzy (1990) and Terzi (2008).

Another finding of the study is the positive relationship between coping with stress and psychological resilience. Alkan (2014) found a positive significant relationship between psychological resilience and coping styles of university students which is consistent with the findings of the present study. Kaya, Peker and Gündüz (2016, p. 591) was found that psychological resilience was negatively correlated to educational stress in secondary school students. In the present study, a positive significant relationship was found between communication sub-dimension of social-emotional learning skills and psychological resilience. Ergün (2016) found out a similar result with high school students. Yöndem and Bahtiyar (2016) also stated that rapid adaptation to a new situation is related to social competence. Many studies, including the current study, reveal the relationship between communication skills, social skills, sociality level and psychological resilience (Ergün, 2016; Padesky & Mooney, 2012; Yöndem & Bahtiyar, 2016).

The findings of the present study reveal that there is a negative and moderate relationship between psychological resilience levels of secondary school students and their automatic thoughts. This finding is consistent with findings of Kaya (2015). Positive psychology studies including, positive affect (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Ong, Bergeman, Bisconti & Wallace, 2006; Tugade & Fredrickson, 2007; Tugade, Fredrickson & Feldman Barrett, 2004) and optimism (Segovia, Moore, Linnville, Hoyt, & Hain, 2012) emphasizes the relationship between psychological resilience. There are some studies also that reveal the relationship between cognitive interventions and psychological resilience (Mooney & Padesky, 2000; Padesky & Mooney, 2012; Reivich & Shatte, 2002; Stallard et al., 2005).

Present study revealed negative relationships between social emotional learning skills and automatic thoughts consistent with various research findings (Akbağ, 2000; Aysan & Bozkurt, 1998, Baldwin, 1992; Boman, 2003; Clark & Goosen, 2009; D’Zurilla & Chang, 1995; Kivlighan and Angelone, 1992; Lee, Draper and Lee, 2001; Şirin and Izgar, 2013; Warmerdam, van Straten, Jongsma, Twisk, and Cuijpers, 2010). Negative automatic thoughts are considered to be one of the most important obstacles to the individual’s inability to develop positive social relationships, self-perception, coping with stress and problem-solving skills.

Within the current study, the equation established to explain the automatic thoughts and social emotional learning skills reveal that the psychological resilience of the students has an effect on their automatic thoughts. In the equation established to explain the latent variable of social emotional learning skills, it is revealed that automatic thoughts and psychological resilience contribute to equality. These two variables significantly explain social emotional learning skills. Higher psychological resilience of the individual was found to be associated with less use of negative automatic thoughts. In the study, it was determined that the psychological resilience of the students directly and indirectly (through automatic thinking) explained the social emotional learning skill levels of the students. It is seen that the high level of psychological resilience enables ability to stretch and recover easily in the face of stressful situations and these are effective factors in the acquisition of social emotional skills as well as in the academic learning process (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009, p.294).

The findings of the study revealed that a negative relationship between the social emotional learning skills and automatic thoughts, and a positive moderate relationship between psychological resilience. In the equation established to explain the latent variable of social emotional learning skills, automatic thinking and psychological resilience contribute to equality. Findings show that psychological resilience is an important factor in the development of social emotional learning skills. It has been determined that psychological resilience directly and indirectly (through automatic thinking) explains the social emotional learning skill levels of the students. It was found that the social emotional learning skills of middle school students were explained significantly by their psychological resilience and automatic thinking levels.

Although the study reveals important findings, it also has some limitations. The concept of psychological resilience is defined as the ability of the individual to adapt to traumatic experiences and stress situations and to return to a state

before trauma and stress. In this study, referring some of the situations that could cause trauma and stress (intrafamilial relationships, divorce, loss of parents, involvement in crime or one of the family members in crime) was restricted during the application permissions. And with some of permitted ones healthy and sufficient data could not be obtained. Thus, this study couldn't contain data on trauma and stress evoking factors experienced by participants. Research variables can be studied with sample groups with different demographic characteristics. On the other hand, it is thought that studies to be conducted with quantitative methods will make an important contribution to the field in terms of enabling the examination of subjective experiences.

Although the study reveals important findings within relatively large sample size, it also has some limitations. The concept of psychological resilience is defined as the ability of the individual to adapt to traumatic experiences and stress situations and to return to a state before trauma and stress. By the definition resilience is a concept that can be evaluated with certain stress and trauma experiences. The stressors in this study is limited with developmental stress factors that can be experienced during adolescence, partly because we couldn't reach data saturation with stress factors, and partly because we could not obtain permissions to ask about trauma and stress experiences from the Ministry of National Education.

As a conclusion this study reveals that resilience as a motivational-affective variable, has an important role to maintain social and emotional learning skills. To enhance acquisition of social-emotional learning skills, resilience and the protective factors should function as important facilitators.

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## CHAPTER 8

# ADAPTATION OF LIFE SKILLS IN YOUNG CHILDREN

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### **Introduction**

**O**-6 years of Early Childhood Education ‘Preschool period’ is considered as the basic education period that prepares our children for the future and plays a major role in their social-emotional, physical and cognitive development stages (Erickson and Kurz-Reimer, 1999).

Our children have largely completed their cognitive, physical, emotional and social development in preschool age. For this reason, the support they will receive from pre-school educational institutions is of great importance to best prepare for the long academic life that awaits them or the life itself. Early childhood is the most important period in terms of the child’s education and development, but the child also has an important place in terms of physical, cognitive, social emotional and language development, and it is believed that the foundations of the person’s experience were laid during this period. “The early years of early childhood are a very effective and productive period in which a large part of the behaviors and habits that the child needs to learn and that will influence him throughout his life are laid the foundation” (Parlakııldız, 2008).

It is easy to achieve targeted success for children who are trained in environments prepared with Life Skills Education and whose social emotional learning principles are applied at an early age, which ranks first among Modern and scientific educational programs.

Life skills acquired in early childhood are vital for our children to grow as “self-sufficient” individuals at every stage of their lives, as in the metaphor of “saplings that grow and take root by overcoming difficulties and turn into a solid tree”. So, how can we adapt “Life Skills”, a network of skills of such importance, to an individual’s life, starting from early childhood? Although there is no single and definitive answer to this question, in other words, this can be blended into every stage of life and education with a more holistic and eclectic model of education in schools and the family (Yıldırım and Temel, 2020).

## **1. Conceptual Framework**

### ***1.1. Life Skills***

According to United Nations Educational, Scientific and Cultural Organization UNESCO (2000), life skills such as self-awareness, problem solving, critical thinking, and interpersonal skills can be learned and applied. Life skills cover a variety of skills such as coping with unresolved conflict, dealing with authority, problem solving, friendship / relationships, establish and maintain cooperation, self-awareness, creative thinking, decision making, critical thinking, coping with stress, negotiation, value, determination of resistance to oppression, frustration, coping with the future planning, empathy, coping with emotions, assertiveness, active listening, respect, tolerance, trust, sharing, sympathy, compassion, sociability, self-esteem, and prosocial skills. Psycho-social skills cover behaviors in personal, social, interpersonal, Cognitive, and affective areas.

Life skills are harmonious and positive behavior skills that enable individuals to effectively deal with the desires, challenges and obstacles of everyday life.

In other words, life skills are learnable skills that help individuals to live productive lives. Life skills are also defined as skills that help individuals to live productive and fulfilling to be successful (Hendricks, 1996). Life skills enable knowledge and attitudes/values to be transformed into behavior. Life skills are prosocial competencies aimed at creating a new and better capacity in the child and adolescent, which is necessary for appropriate and positive behavior (Prajapati, Sharma and Sharma, 2017). Life skills include a broader set of skills and attitudes that are difficult to identify.

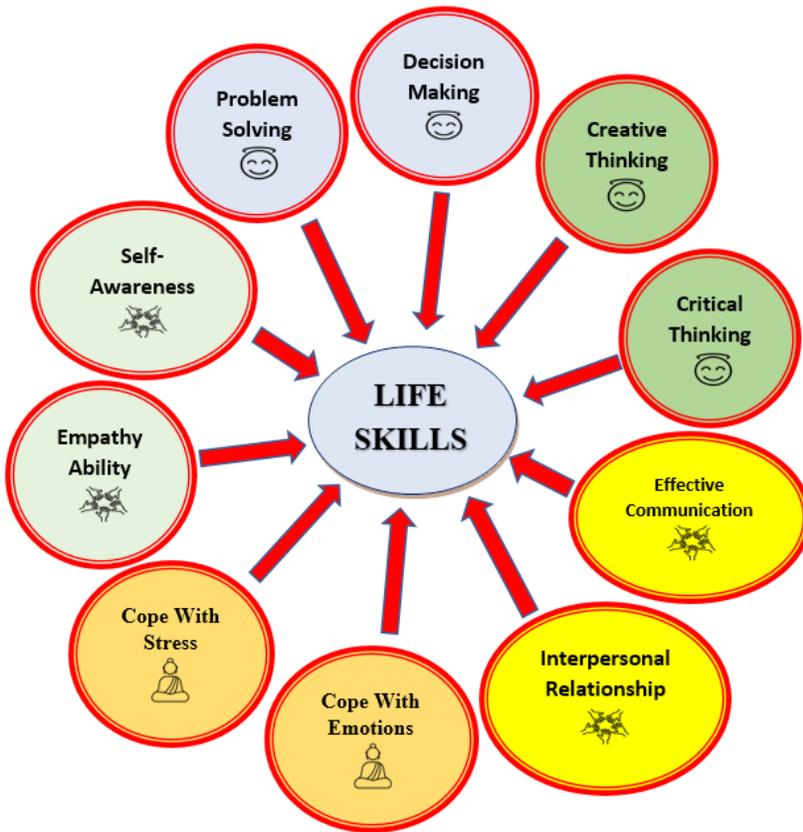
A few terms are used in this context. There are:

- Life skills,
- 21<sup>st</sup> century skills,
- Non-cognitive skills,
- Non-academic skills,
- Character skills,
- Precise capabilities,
- Social and emotional learning.

The World Health Organization (WHO, 1997; WHO, 1999, defines life skills as “harmonious and positive behavioral abilities that enable individuals to effectively deal with the demands and challenges of everyday life”. Basic life skills help to cope with and adapt to the challenges encountered daily. These skills enable productive individuals to become members of society. However, adapting life skills in the early years not only helps children become self-sufficient but also improves their ability to reason. It supports children’s self-esteem and self-confidence while helping them to build social relationships with others and successfully manage their social relationships. It enables communication and connection between the child and the adult and for the parent or teacher to have more information about the child.

There is a wide range of life skills that can be trained for children. Here are the ten most useful life skills that children need to succeed in school and life:

1. Decision Making
2. Problem Solving
3. Creative Thinking
4. Critical Thinking
5. Effective Communication
6. Interpersonal Relationship
7. Self-Awareness
8. Empathy Ability
9. Ability to Cope with Emotions
10. Ability to Cope with Stress.



**Figure 1. Components of Life Skills**

### ***1.1.1. Decision-Making Skills***

Decision-making ability is the final judgment given by thinking about an activity or a problem. Decision-making is a choice because a person chooses at least one of two things. Decision-making is a responsibility because a person has to face the consequences of his decision. For this reason, it is very important to take responsibility for making an effective decision and to be able to define the results and effects of the decision taken. Decision-making steps: it is to define the decision to be made, to determine the expected outcome of the decision, to collect information, to determine the options and the advantages and disadvantages of each of these options and to make decisions.

The balance that is struck between parental authority and child independence in choices about children's activities is potentially important for developmental outcomes. Parental involvement in children's decisions could

lead to their better cognitive abilities in decision making, in addition, children develop self-confidence by taking independent actions, decisions, and judgments by experiencing their own mistakes. A gradual transfer of decision power from parents to children is believed by child development experts to be better for children than premature independence. This makes them better collaborators to their peer group (Steinberg et al., 1991).

Decision-making is the process of selecting one or more sequences of action. Decision-making is a social process and an important life skill learned. Like other skills, time and life experiences are necessary for them to be active in this field. At the same time, this process develops spontaneously when children communicate with others. Mutual interaction has an important role at this stage (Lundberg, Romich and Tsang, 2009).

In the decision-making process, when children encounter a situation that poses a problem for them, they research what to do to solve the problem, and then they can find the best way to solve the problem. In order to do this, they work together with their friends and research studies that they can do independently or in groups. They analyze the information they find and can reconstruct their observations by revealing what they have. They then make a decision, analyze the group's process. They share results and supporting data with each other. They believe that it is important to be active in group discussions in order to evaluate critical situations in this process. They can detect comparative and contradictory situations and determine the possible consequences of current situations (Dunne and Bennett, 1990; Barkley, Major and Cross, 2014). Competent (teacher) counseling plays an important role in decision-making in approaches such as everyone expressing their views and putting all alternatives to a vote, setting criteria, and unanimously adapting to the child's performance (Barkley, Major and Cross, 2014). Given that children's brain development continues, it can be said that decision-making skills also develop in parallel with brain development. In particular, the prefrontal cortex, which is supposed to play a critical role in decision-making, matures more slowly than other brain regions (Benes, 2001).

### ***1.1.2. Problem Solving Skills***

The Problem is that an undesirable situation occurs. People face many problems in all areas during their lifetime. Considering the life of a child, his reaction to this situation, how he will approach it, what decisions he will make, and the way he will use it to reach a solution is called problem-solving skills. In order to overcome anxiety situations in later life and make more efficient decisions, it is

very important to gain features such as problem coping and problem solving in childhood (D'Zurilla and Nezu, 2007).

### ***1.1.3. Creative Thinking Skills***

Creativity and creative thinking, one of the most basic aspects that distinguish humans from other living things, is a subject that attracts attention and preserves its mystery in every era, from ancient thinkers and philosophers to modern scientists (Eker and Sari, 2017). Ideas about creativity are understood to date back to Plato (Maba, 2019). In this context, creativity is first defined as a philosophy, followed by psychology, social sciences, fine arts, education, etc. he has produced theories on different disciplines (Onur and Zorlu, 2018).

Creative thinking is the ability to look at events differently and find new ways to solve problems. It is a way of looking at problems or situations from a new perspective that suggests unorthodox solutions. Creative thinking can be developed both through an unstructured process, such as brainstorming and through a structured process, such as virtual thinking.

So, creative thinking is the ability to think differently. It allows young children to see a problem or issue from a new angle or perspective. This often allows them to find a new solution and even see that the problem does not need a solution.

### ***1.1.4. Critical Thinking Skills***

Critical thinking is often an evaluation process and ability that involves a rational, skeptical, impartial analysis of a phenomenon or an evaluation of actual evidence.

Critical thinking skills are important for ensuring that children get better grades in school, making them less dependent on teachers and textbooks, ensuring that they produce knowledge, and ensuring that children evaluate and change structures in society (Paul and Elder, 2008).

### ***1.1.5. Effective Communication Skills***

Effective communication is to convey the message you want to give to the opposite party as soon as possible and most clearly. When communicating with someone, you may not be able to say what you want to say, or you may not be able to give the message directly. To be good at this, you need to have effective communication skills.

Listening, good use of diction, good use of your voice, correct management of body language and staying in touch with the person in front of us are factors in communication skills.

Deficiencies in the child's communication skills cause difficulties in interacting, this increases the likelihood of peer rejection, and it can cause the child to exhibit incompatible behavior. For this reason, deficiencies in communication skills in early childhood are not interfered with, this cycle continues if the underlying skill deficiencies are not taken into account (Craig-Unkefer and Kaiser, 2002). For children with limited social communication skills, starting and maintaining the game is also difficult. These children can be ineffective in participating in conversations about the game and maintaining conversations about the game. Although Play offers opportunities for a child's same-aged-groups communication, limited communication skills, poor social skills, or high levels of problem behavior can prevent the child from achieving these opportunities (Craig-Unkefer and Kaiser, 2002).

### ***1.1.6. Interpersonal Relationship Skills***

Interpersonal relationships involve two or more people forming relationships. These relationships can be short-term or long-term. Relationships that a person creates with their partner, family or friends are covered in this context. Positive interpersonal relationships also have a positive impact on the overall life of the individual. A person's positive interpersonal relationships are closely related to their social skills, the characteristics of the person with whom they relate, and the characteristics of the environment (Booth, 2004; Çiftçi Dere, 2015; Kaya, 2012).

Interpersonal skills are defined as skills that we use every day when we communicate and interact with other people, both individually and in groups. These include a wide range of skills, but especially communication skills such as listening and effective speech. They also include the ability to control and manage our emotions. This can be developed in young children to have better future citizens.

### ***1.1.7. Self-Awareness***

In short, self-awareness is to understand and realize our inner world, thoughts, feelings and beliefs. Being aware of all the feelings, thoughts and beliefs that belong to us means understanding who we are. This situation is very important for our personal development. Of course, no one is born with self-awareness,

but understanding who you are from an early age (early childhood) will make the life we build happier and more satisfying. The self-aware individual knows his strengths and weaknesses. He dominates his thoughts and emotions, as well as his motivations.

The use of inner speech is necessary to gain self-awareness and self-monitoring skills (Richarson, 2009). Self-awareness, the social and emotional skill of young children, involves identifying children's looks, skills, what they like and dislike.

### ***1.1.8. Empathy Ability***

Empathy is a condition in which a person can put himself in the place of the other person and understand the feelings and thoughts of the other person. Empathic skill is defined as being able to convey and feel what you understand to the person you empathize with, while the empathic tendency is the potential to feel the feelings of the person you empathize with.

Empathy is defined as “an individual’s emotional response that resembles the emotions that the other person feels or is expected to feel in that situation as a result of understanding or understanding the emotional state or conditions of another person (Eisenberg, Spinrad and Sadovsky, 2006). Empathy consists of two components.

There are approaches that empathy consists of cognitive and affective elements. Cognitive empathy is at the level of cognition, and the person who empathizes can perceive the thoughts and feelings of the person with whom he empathizes without experiencing (experiencing) himself.

Emotional competence includes the ability of children to be aware of their feelings, manage them, understand the feelings of others, and show empathy (Semrud-Clikeman and Schafer, 2000).

### ***1.1.9. Ability to Cope With Emotions***

The ability to deal with emotions is an ever-changing cognitive and behavioral effort to manage specific external and/or internal demands that are considered to tax or exceed their resources. The impression that a particular object, event, or individual evokes in the inner world of a person is defined as emotion. Emotions begin to be learned from the womb and continue throughout life. Emotions that arise in line with mental processes are reflected together with the individual’s interaction and relationship with the environment.

In the early childhood period, emotional development manifests itself very quickly. Recognition, identification of emotions, emotional experiences develop

very rapidly during these years, while at school age this situation slows down. During adolescence, emotions come to the fore again. During this period, the nature of emotions becomes fixed, unstable states of emotions arise.

Emotional skills affect the child's readiness to start formal school. When he starts school, social and emotional skills such as managing his behavior and being tolerant of his peers affect his adaptation to school as well as building successful social relationships (Halle, Hair, Burchinal, Anderson and Zaslow, 2012). Weakness in the social and emotional sphere can prevent children from achieving success in family, school, or other relationships. Emotional or behavioral problems in young children can cause behavioral problems in adolescence, including leaving school and juvenile delinquency (Brauner and Stephens, 2006).

#### ***1.1.10. Ability to Cope With Stress***

Stress makes itself mentioned in many professional fields, from medicine, psychology, human resources to the field of law. Stress is defined as “the effort that a person spends beyond their physical and psychological boundaries due to incompatible conditions in the physical and social environment” (Cüceloğlu, 1994). Stress is defined as a condition that occurs when the physical and spiritual boundaries of the creature are threatened and forced. The organism prefers to either fight or escape in line with the threat it faces. Regardless, it reveals several reactions to the stress faced by humanity. These reactions can be psychological or physiological. Psychological responses are examples such as insomnia, difficulty falling asleep or vice versa, unhappiness, while physiological responses can be palm-sweating, and so on. Physiological responses can usually be seen in the same direction in all individuals, while psychological responses can vary. The reason for this difference may be needs, motives, beliefs, education and perceptual characteristics. In short, a person's personality traits may be among the reasons that make it easier or harder to cope with stress (Cüceloğlu, 1994).

Currently, it is noted that stress is the source of many negative conditions. An individual must protect himself from these negative sources. Therefore, the individual will either fight or escape in the face of stressful situations. All of the methods that a person exhibits to get rid of stress are called methods of coping with stress.

Especially in the early childhood years, it is very important to meet the emotional satisfaction of the child. During this period, the young children cannot stand on their own feet, needs care and attention. Their basic needs are met by their parents or an adult around them. These basic needs include physiological

needs such as eating, drinking, nutrition, while emotional needs such as love, trust, understanding that provide emotional satisfaction and must be met are also included. Meeting these emotional needs will keep the young children away from stress factors and allow for healthy development.

### ***1.2. Pestalozzi and Life Skills***

Life skills help to cope with and adapt to the challenges encountered daily. These skills enable the children to become productive members of society. However, teaching life skills not only helps children to be adequate on their own but also improves smart walking skills. It supports children's self-esteem and self-confidence to help them communicate socially through their achievements and successfully manage their social communication. It means that the communication and decoupling between the child and the adult allow the parent or teacher to learn more about the child (Field, 2000; Pestalozzi, 2016).

### ***1.3. Dalkılıç and Life Skills***

Young children can learn to control their behavior and learn to manage emotionally support to be successful individuals in the society which will help to ensure that harmony and benefit the country's development (Karayılmaz, 2008).

### ***1.4. Darling-Churchill & Lippman and Life Skills***

Research shows that children in loneliness, emotional problems such as anxiety, low self-esteem and self-image, low self because of the level of social and academic life in the first years of school, not to establish positive relationships, exposure to bullying at school, suggests that they have evolved to fit in like the reasons. As children develop social and emotional skills, they gain the confidence and competence necessary to communicate, solve problems and cope with emotions (Darling-Churchill and Lippman, 2016). Incompatibility in the social and emotional sphere can impede the ability of children to work in their families, schools or other connections (Campbell, 2006; Darling-Churchill and Lippman, 2016).

### ***1.5. Importance of Life Skills in Young Children***

- Life skills contribute significantly to the development of individuals from early childhood years. Acquiring life skills is based on child empowerment and the philosophy that these skills can be learned. Based on this philosophy, individuals who can develop themselves and have the ability to adapt are

healthy in terms of physical, social, emotional, and cognitive development. In a changing and developing world, life skills are the basis of children's ability to adapt to change and challenges. These skills help children notice themselves, protect themselves from dangers, and tend to acquire positive behavior, make healthy decisions, and build healthy relationships (Güven and Işık, 2006).

- Life skills also improve children's ability to cope with difficult situations. It contributes to self-awareness by allowing the child to recognize his strengths and weaknesses. In addition, life skills allow a child to both trust themselves in making decisions and cope with the consequences of the decision.
- There is research that shows that life skills acquired in the early years of life have an impact on the lives of individuals in the later years. Some longitudinal studies show that non-technical skills such as self-control and self-perception in childhood have an effect on well-being in adulthood and on being physically and mentally healthy. Research finds that young people who receive life skills training in the summer of the field are more successful in self-confidence, empathy, and interpersonal relationships than young people who do not (Eisenberg, Spinrad and Sadovsky, 2006).

Academically, each Education at an early age will positively affect the development of the child and allow him to adapt more quickly to other levels of education, especially primary school (Yıldırım and Temel, 2020).

### ***Strengthening Life Skills in Young Children***

- Schools generally prefer to apply traditional reactive (reactive) behavior management techniques to reduce children's inappropriate and destructive behavior. Rather than waiting for Problem behaviors to occur, proactive techniques such as teaching appropriate behaviors can successfully reduce the likelihood of problem behaviors occurring. Proactive techniques can be used to teach conflict resolution methods and behaviors. Preschool children can learn social skills through concrete objects. For this purpose, social and emotional skills can be acquired in this age group by using puppet shows, role-playing and storytelling techniques, rather than direct training (Berliner and Tracy, 2015).
- Teachers and parents should be warm, sensitive to children and model themselves by empathizing, problem solving, making decisions and thinking critically.

- Families are told to leave when taking children home from school, considering the map they have drawn. The importance of this behavior is mentioned that what he is doing will make him feel valuable and motivate him more. On picture paper, you can make an example yourself for children to understand more comfortably. But it must be carefully emphasized that the maps that children will make themselves show their paths, which are unique to them (Yıldırım and Temel, 2020).
- Games and role-playing activities allow children to develop their abilities, practice, identify and express emotions, and take perspective. It also develops thinking skills and social skills in children (Berliner and Tracy, 2015).
- Children’s literature allows children to talk about emotions and see different ways in which characters manage and express emotions. Stories can also help teachers understand similarities and differences in emotions by expressing to children that the characters may experience a similar situation to the emotions they experience. Because children’s literature often evokes empathy, teachers have the opportunity to support children’s empathic responses through children’s literature and to talk more about those responses (Berliner and Tracy, 2015).

## 2. Related Research

The functional communication skills targeted in the preschool Life Skills Program prepared by Hanley et al. (2007) and Hanley et al. (2014) are as follows:

### **Skill 4: asking for help**

After ensuring compliance with the guidelines given by the teacher, the first communication skill is the ability to “ask for help”. Children are allowed to ask for help in an activity or work that they cannot complete without the help of a teacher (for example a child cannot be reached, please, can you help me? as...).

Luczynski and Hanley (2013) also expanded this skill by adding a request for help. They are “May I have your help?” and “can you help me?” as...

### **Skill 5: asking for Attention/Attention**

It includes the ability to draw the attention of a busy teacher or friend to him as appropriate. Children are taught attention-grabbing behavior by” apologizing.”

### **Skill 6: asking adults**

Asking children for preferred materials, in order to obtain “Can I have it? / Can I? Request behavior is taught by his sentence. For example, the teacher stands in front of the door of a playroom and is asked to make an appropriate request for the child to pass in the blocked area (for example, can I pass?). Luczynski and Hanley (2013) also developed the ability to draw attention to itself appropriately and added new behaviors. These are stop/stop playing, turn to the teacher and indicate their desire appropriately; excuse me “has been expanded to” excuse me... and name the teacher to indicate his requests and to quietly wait until his request is fulfilled and his requests are approved.” However, when children ask their teacher for something, the teacher does not immediately fulfill their wishes, and sometimes tries to wait for the child for at least 5 to 30 seconds. Luczynski, Hanley, and Rodriguez (2014) believe that waiting in this way supports the development of self-regulation or self-control in children. Luczynski and Hanley (2013) also added new behaviors to the ability to request from adults. For example, for a crayon standing on a table, the child says, “Can I have a crayon? It says “and “can you give me a crayon? As they say... Luczynski Hanley and Rodriguez (2014) also added the component of waiting for teacher approval for both skills (e.g., “yes, I can help you” or “of course, you can get the crayon as...”).

### **Skill 7: asking peers**

Similarly, “can I have it? /Can I? In his sentence, he is taught the behavior of asking his friends. For example, during game time, when your friend is done with the material or toy, can I have it from his friend? “As he makes a request...

### **Don’t be tolerant of delays.**

### **Skill 8: being tolerant of adult delays**

Hanley et al. (2007) and Hanley et al. (2014), in which children say” OK” and “don’t wait patiently” its behavior is located at. After the teacher consented to the child’s wishes, he said: “Please Wait” the skill is studied in the form of saying and waiting for the child for up to 30 seconds. Delay during, he softly tells the children, “When I wait quietly, I get what I want.” They are taught to say. Words won’t be heard after the skill is won by young children in this way, they are asked to repeat the words of waiting in lower voices. Being tolerant of adults, “combined with the ability to make requests from adults it can be applied. For example, to access watercolor paints, first, a child says, “Excuse

me” and waits for teacher approval, second, the child “ can get watercolor paints I?” he says and waits for the teacher’s approval; third, if the teacher says, “ I’m busy, please one “the child accepts the delay by saying” OK “ and the teachers they quietly wait for him to deliver the paints. This skill is first with teachers and peers we have been taught. Luczynski and Hanley (2013) and Luczynski, Hanley and Rodriguez (2014), minor he expanded the teaching procedures of the ability to be tolerant using a group format.

In addition, using various verbal cues (e.g., “a little”, “wait, please” and “later”) and using nonverbal cues by establishing or not making eye contact (e.g., it’s like raising your index finger and making a wait sign...). For your children, it is recommended to give systematically varying waiting times from 15 seconds to 45 seconds so that they do not anticipate delay times. Also, after requests for help from children in the extended program, there is a denial of tolerance (e.g., “No”) is taught.

### **Skill 9: being tolerant of delays imposed by friends**

Similar to being tolerant of adult delays, children’s friends, are taught to be tolerant of delays. During a game or event, asking for toys and material from your friend appropriately, waiting patiently for its acquisition is targeted.

### **Friend relationships**

#### **Skill 10: don’t say thank you**

Hanley et al. (2007) and Hanley et al. (2014), 5 seconds after receiving something from a teacher or a friend he aimed to teach children to say, “thank you.”

#### **Skill 11: accepting or complimenting others**

Hanley et al. (2014) telling children to greet a friend (say “hello”) 10 seconds after seeing classmates or arriving at the playground, or a gesture from a friend or compliment/ express your admiration for his outfit, etc. (for example, his shirt” I like to say) aims to teach.

#### **Skill 12: Share**

Hanley et al. (2007) children, a new game (or peers) every 10 seconds it aimed to teach them to present toys or materials in their environment. Skill for children to win, they must first accept their friends. Later, Children are either finding a new toy for the peer or a toy they are playing with they share.

### **Skill 13: relieving others in case of stress**

The final skill shows that children have pain or distress when a peer or teacher indicates that they are in pain or distress “are you okay? “It involves teaching you to ask the question. This skill is more than social empathy considered to be a component of a wide repertoire (Luczynski and Fahmie, 2017).

Hanley et al. (2007), evaluated the efficacy of PLS (Preschool Life Skills) in a university-based preschool classroom with 16 children. Thirteen skills, separated into four units, were taught class wide, and the effects of teaching were evaluated in a multiple-probe design (Horner & Baer, 1978) across skill units.

### **3. Conclusion and Recommendations**

Life skills cover conflict resolution, problem-solving, establish and maintain the friendship, cooperation, self-awareness, creative thinking, decision making, critical thinking, ability to handle stress, negotiation, value determination, frustration, coping, planning the future, empathy, coping with negative emotions, assertiveness, active listening, respect, tolerance, trust, sharing, sympathy, compassion, sociability, self-esteem, prosocial skills. Life skills that are important to acquire in preschool years should be included in the program by preschool teachers in the classroom environment (Hanley et al., 2007).

Life skills are skills that need to be acquired in preschool years. In particular, given the positive impact on children’s social development and problem behavior, preschool teachers should include studies that support life skills in the classroom. However, parents should also support children’s life skills in the home environment (Hanley et al., 2007).

Research on the preschool life skills program mentioned in the field summer and noted the positive impact on children’s social skills. Preschool life skills programs can be prepared all around the world and the impact of young children on different areas of development can be examined (Hanley et al., 2007).

In addition, no measurement tool has been found that measures the life skills of preschool children. Life skills measurement tools can be prepared for young children.

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## CHAPTER 9

# EVALUATION OF THE EFFECTIVENESS OF TRAINING IN CREATIVE THINKING FOR NURSING STUDENTS: A SYSTEMATIC REVIEW OF RANDOMIZED CONTROLLED STUDIES

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### 1. Introduction

Creativity is considered to be a multidimensional phenomenon in the world of science (Yeşilyurt, 2020). There is no consensus on the definition of creativity due to the complexity of its structure and the different foci of different disciplines (Jia et al., 2019). Gabora (2019) argued that creativity is an ability to develop innovation based on old knowledge (Gabora, 2019). Jauk (2019) stated that creativity is the process of understanding problems,

generating ideas, and designing activities by adopting different and convergent thinking (Jauk, 2019). Martin and Wilson (2017) defined creativity as “the discovery and bringing into being of new possibility” (Martin and Wilson, 2017). In psychology research, creativity is defined as the process that leads to the production of original, useful and efficient products (Lebuda et al., 2021). In this context, the most important trait that distinguishes human beings from other living and non-living beings is creativity. Creative thinking skill has always kept its mystery from antiquity until today (Akpur, 2020; Yang and Zhao, 2021).

While creativity guides technological and cultural developments at global level, it contributes to professional achievements at individual level (Sawyer, 2011; Nakano and Wechsler, 2018; Gabora, 2019). When studies are examined, it is seen that creative thinking has been the focus of studies after the middle of the twenty-first century (Jia et al., 2019; Gabora, 2019; Jauk, 2019; Yeşilyurt, 2020). It is also seen that the first studies on creativity and creative thinking generally concentrated on the fields of advertising, art, and architecture. However, in the twentieth and twenty first centuries, creativity has emerged as a key phenomenon that needs to be developed in many disciplines from education to economy and from health to technology (Cropley, 2016; Yeşilyurt, 2020).

Nursing is a profession that is intertwined with human nature and that requires creative thinking and innovative action in the health service provided. Keeping up with today’s rapidly changing and developing healthcare environment, developing patient-friendly care services creatively and efficiently, using technology and interdisciplinary teaching and learning strategies in the best way possible are important and popular topics in this field (Subeq, 2019).

Creativity is a very important skill in terms of solving problems and generating ideas. Nursing involves caring for patients with different backgrounds, health conditions, and unexpected situations. Therefore, nurses are expected to have creative thinking skills in order to go beyond routine practices and make healthier decisions (Chan, 2013).

In the twenty-first century, creative thinking is considered to be an essential skill in different fields of nursing, including practice, management, education, and research. Innovative teaching strategies should be used in nursing education so that nurses could be trained based on the demands of the global world (Liu, 2020a). In parallel with this, the importance of developing creative thinking in nursing education also emerges.

Acquiring creative thinking skills in nursing education is important to be more creative, to have high levels of awareness, and to solve problems. Education system has a significant role in designing educational programs that may help

improve the creativity of students. Learning to be creative depends on whether or not creativity can be taught (Liu et al., 2019). It is seen that the studies on creativity in the literature tend to highlight the development of creative thinking skills in nursing students more (Duhamel, 2016; Ma et al., 2018; Liu et al., 2019; Liu, 2020a; Bartos, 2020;). This systematic review has two purposes. The first is to examine the studies on the effect of trainings given to improve creative thinking skills at the international level on creative thinking skills. The second purpose is to contribute to both the literature and academicians who provide nursing education in order to increase the quality of education of students.

## **2. Method/Materials**

### ***2.1. Ethics Committee Approval Information***

There is no conflict of interest between the authors. The research has been prepared within the scope of a systematic review. Therefore, ethics committee approval was not required.

### ***2.2. Data Sources***

In this systematic review, a computer-aided literature review was conducted from five databases, which are TR Index, Cochrane Library, PubMed, Web of Science, Higher Education Council (HEC) National Thesis Center, between September and December 2020. In order to find the research studies investigating creative thinking or creativity in nursing education, the following word combinations were used in searches: “creative thinking”, “creative thinking education”, “creative thinking and nursing”, and by entering the corresponding English keywords. The time frame for the review was from January 2010 to December 2020.

### ***2.3. Inclusion Criteria***

The framework of the systematic review was defined according to PICOS (P: population, I: interventions, C: comparisons, O: outcomes, S: study design) (Methley et al., 2014; Shamseer et al., 2015).

#### *Population*

The participants were composed of the students studying in the nursing department. No limitations were imposed in terms of socio-demographic characteristics such as ethnic origin, socioeconomic status, marital status, age, and gender.

### *Interventions*

Studies referring to a nursing education program or a program that would encourage the creativity of nursing students were taken into consideration in the review.

### *Comparisons*

The intervention groups in the reviewed studies consisted of students studying nursing and included in a training program developed by the researchers, while the control groups consisted of students who also were studying nursing but who were not included in a training program.

### *Outcomes*

Studies examining the effectiveness of creative thinking training programs developed for nursing students were included.

### *Study Design*

The titles and abstracts of the randomized controlled experimental studies which were published in English and Turkish, which have ample evidence, and which met the selection criteria were examined independently by the researchers. Independently selected articles were compared and a consensus was reached on the selected articles. This systematic review is a randomized controlled experimental study including studies which were conducted between 2010 and 2020, which were written in English or Turkish, and whose full text is accessible.

## **2.4. Exclusion Criteria**

Meta-analyses, reviews, systematic reviews, and case-control, descriptive, quantitative and cohort studies were not included in the systematic review.

## **2.5. Article Selection Method**

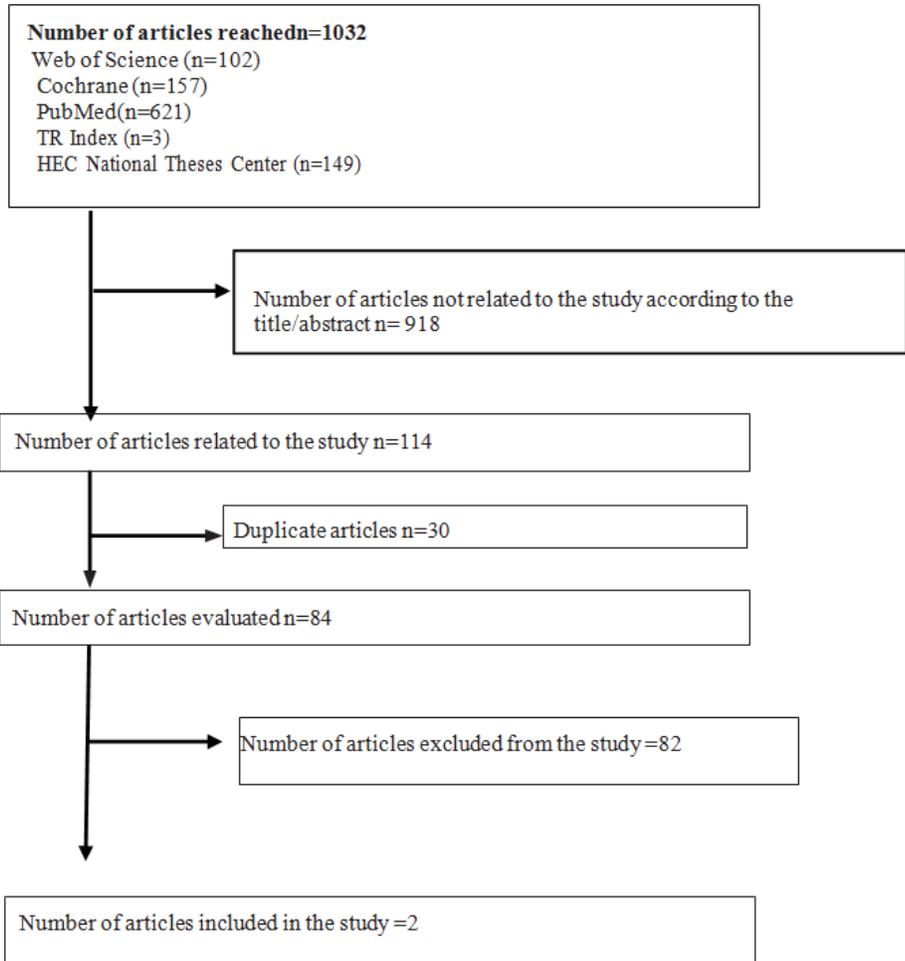
In this systematic review, the PRISM flow was adopted:

*Definition:* The related titles/abstracts in national and international databases were examined. As a result of the search, a total of 1032 studies were reached (Web of Science: 102, Cochrane Library: 157, PubMed: 621, TR Index: 3, HEC National Thesis Center: 149). Duplicate studies were sorted out manually and using the EndNote X7 program.

*Sorting Out:* The studies suitable for the purpose of the study were included (n=114). Duplicate studies in different databases were identified and deleted (n=30) and the evaluation continued with the remaining studies (n=84).

*Selection:* Studies not suitable for PICOS were excluded from the study (n = 82).

*Inclusion:* After the full texts of the included studies were obtained, the articles that met the inclusion criteria were selected (n=2). The article selection stages were displayed in Figure 1.



**Figure 1.** Article Selection Stages

## 2.6. Review Result and Quality Evaluation

1032 studies were identified as a result of searches in five databases. After excluding the duplicate studies and reviewing the titles and abstracts, 84 full text articles were considered for a more detailed examination. The full texts of these articles were reassessed to see if they satisfied the inclusion criteria.

During the full-text review process, answers to the following two questions were sought: (1) Does this article include randomized controlled data collection and analysis methods?, and (2) Is the research about creativity / creative thinking in nursing students?. 82 studies were excluded because they were not descriptive and qualitative, and they did not focus on the relationship between nursing training program and the creative thinking/creativity of nursing students. As a result, two studies were found to meet all the criteria. The reference lists of these two studies were also reviewed; however, none of the reference studies were found to meet the inclusion criteria of our study. Both articles were read by the researchers and there was a consensus between the researchers to include the articles in the study.

### **3. Findings**

As a result of the literature review, two randomized controlled experimental studies that served the purpose of the study and satisfied the inclusion criteria were included in the review. The findings obtained from the data included in the study are presented under the headings of sample characteristics, intervention characteristics, the effect of the intervention.

#### **3.1. *Sample Characteristics***

The sample of the two studies included in the study consisted of students studying nursing. The studies were conducted in Iran and Taiwan. The sample size of the study conducted in Iran was 30 (Hanghgoo et al., 2017), while that of the study conducted in Taiwan was 64 (Liu et al., 2020b). Both studies are randomized controlled experimental studies with ample evidence.

#### **3.2. *Intervention Characteristics***

In their single-center study, Haghgoo et al. (2017) included all of the nursing students who attended the “nursing in emergency course”, but not attended similar and concurrent sessions (Hanghgoo et al., 2017). The sample group including 30 nursing students was randomly divided into six groups. Data were collected in three steps: before the implementation of the concept map, immediately after the implementation of the concept map, and one month after the implementation of the concept map. “Peter Honey’s Creative Thinking Questionnaire”, which includes demographic characteristics and creative thinking questions, was used in the study. After the pretest was administered to the intervention and the control groups, the intervention group was requested to design and present

five conceptual mind maps using the MindMapper software. The conceptual mind map implementation was designed in three stages, which are preparation, engagement, and evaluation. At the preparation stage, the students were given information about the course content and the methods of working with the MindMapper software. At the engagement stage, some content was presented to the students and they were asked to prepare a mind map about that content as a group for the next session. During each session, a student was selected from each group to present the concept map of the group in 20 minutes. At the evaluation stage, feedback was received from the students for the developmental evaluation of the sessions and the training performance. The researchers applied a posttest questionnaire immediately after the session and one month after the training in order to evaluate the effectiveness of their training. Pre-test and post-tests were used to evaluate how effective the training was (Hanghgoo et al., 2017).

The single-center study carried out by Liu et al. (2020) included the students studying at the nursing faculty of a university in Taiwan (Liu et al., 2020b). Those who volunteered to take part in the study were randomly assigned to the intervention (n=21) and the control group (n=21) (Liu et al., 2020b). The teaching for creativity module (TCM) was designed to provide nursing students with teaching skills that can improve their innovative abilities so that they can develop healthcare products through the improvement of innovative skills and divergent thinking. The three stages of the TCM are creation, design and implementation (Liu et al., 2020b). The aim of these stages is to merge the divergent and convergent thinking of students with their autonomous learning and creative thinking skills and to help them develop healthcare products. The TCM aims to equip nursing students with creative thinking skills and with the ability to acquire strategies that will help them produce and apply healthcare products by using their personal knowledge and skills in the field (Liu et al., 2020b). The pretest was administered to the intervention and control group by the instructors before the TCM program. Then, the TCM was carried out through 16 hours of theoretical training and 6 hours of practice. The training was given to the intervention group by the faculty of the Department of Industrial Design, and the faculty members from the nursing faculty gave training to the experimental group. At the first stage, a workshop was held for two days (Liu et al., 2020b). The aim was to familiarize the students with the introductory and advanced levels of creative thinking techniques employed to produce healthcare products. At the second stage, the students practiced the creative techniques they learned in the workshop. The training lasted for 18 weeks. The control group was also taught five creative techniques and tools (application for design thinking, brainstorming, the attribute listing technique, human-centered design thinking,

the assessment matrix technique and the paired comparison method) that were taught to the intervention group (Liu et al., 2020b). The faculty members of the Department of Industrial Design and the Department of Nursing provided guidance to the students during the group meetings. The topics of guidance were how to generate ideas on healthcare needs and products, how to evaluate the urgency of these needs and products, and how to choose the optimal solution. In these topics of guidance, divergent thinking, convergent thinking, and idea generation techniques were employed respectively. The faculty members of the Department of Industrial Design helped provide interdisciplinary teaching for the students as well as providing practical experience for the students in the intervention group (Liu et al., 2020b). Thanks to the use of such an interdisciplinary teaching method, a supportive and encouraging environment was ensured for the nursing students throughout the workshops. The “Creativity Teaching Behavior Scale”, “Creativity Teaching Efficiency of Technology Institute Teacher’s Scale”, and “Self-efficacy for Creativity Teaching Scale” were used in a pretest / posttest design to investigate the effects of the TCM intervention. After the completion of the 18-week TCM, posttest data were obtained. As a result, the effectiveness of the program was evaluated considering the differences between groups (Liu et al., 2020b).

### ***3.3. Effect of the Intervention***

In their study, Haghgoo et al. (2017) found no significant differences between the creative thinking and analytical thinking pretest mean scores of the students in the intervention and control groups; however, the creative thinking and analytical thinking posttest mean scores of the intervention group were found to increase significantly. They further revealed that the creative thinking scores of the students in the intervention group continued to increase one month after the intervention. The repeated measures test results showed that the change in the mean scores of the scales tended to increase statistically significantly in all three tests (pre-test, post-test and posttest one month after the intervention) (Haghgoo et al., 2017).

In their study, Liu et al. (2020b) found that the TCM intervention led to a statistically significant increase in the sub-dimensions of autonomous learning behavior, creative thinking and autonomous learning skills of the students in the control and intervention group (Liu et al., 2020b).

## **4. Discussion**

In this systematic review, an answer was sought to the questions of “What is the effect of training on creative thinking on nursing students’ creativity?” The answer

to the question was sought. Two randomized controlled studies evaluating the effectiveness of training programs developed to improve the creative thinking of nursing students were included in the review. It was determined that the creative thinking interventions contributed to the creativity of students (Haghgoo et al., 2017; Liu et al., 2020b).

In the studies examined within the scope of the review, detailed information was given regarding the trainings aimed at developing the creativity of nursing students. The training programs that were developed to teach creative thinking and were included in a certain curriculum contributed to the creativity of both nursing students and the academicians giving the training (Liu et al., 2020b). Similar results were also obtained in the studies that could not be included in the review because of not meeting the inclusion criteria (Yang et al., 2018; Yang et al., 2019; Liu, 2020c; Liu et al., 2020d).

Although there is a difference between the studies whose teaching and learning materials were examined, it is seen that all educators who tried to improve the creativity of students diverged from traditional teaching. While traditional classroom environments and instruction (for example, tests and exams and teacher-centeredness) can hinder the creativity of students, less rule-based student-centered activities that involve games can trigger creativity (Richardson and Mishra, 2018). Therefore, it is important for nursing educators to adopt practices that arouse students' creativity and curiosity and to integrate innovative programs involving real-life case studies into the curriculum.

Trainings given using creative thinking techniques enable students to improve not only their knowledge but also their skills. For this reason, the applicability of the trainings on creative thinking is important for the development of creativity skills. Trainings given to develop creativity include group practices. It is clear that, in this way, both students' creativity and their communication and interpersonal interactions will improve (Haghgoo et al., 2017; Liu et al., 2020b).

Thinking creatively is significant for the nursing profession as in all disciplines. However, it is thought that it is not adequately addressed in the literature. In addition to standard teaching methods, the use of different approaches and different educational techniques (technology-based training, etc.) for creative thinking in the nursing curriculum enables the education program to be enriched and the courses to be more effective. It can be stated that a specific plan or curriculum to be prepared to improve the creative thinking skills of nursing students can make a significant contribution to students and science.

## 5. Conclusion and Recommendations

Creative thinking skills are a very important part of nursing healthcare practices. However, while the number of descriptive studies on the creativity of nursing students is quite high, it has been observed the number of studies aimed at developing creative thinking skills of nursing students is limited. Studies have revealed that the trainings provided to improve the creativity of nursing students are effective. It is believed that trainings given to improve creative thinking skills may increase the knowledge and skills of nursing students, the quality of healthcare they will provide and will shed light on larger studies. For this reason, it is recommended to conduct research on the subject with large groups and with ample evidence and to include educational content in the curriculum to increase the level of knowledge and skills of nursing students.

### 5.1. *Implications for psychiatric nursing practice*

In psychiatric nursing, the quality of the care given to patients is based on the process of getting to know and understanding the patients correctly and providing them with the correct care. The most important tool used in this process is interpersonal communication. Feelings and thoughts are conveyed verbally or physically.

Creativity is the way individuals express their achievements in order to realize themselves. One of the treatment methods in the field of psychiatry is the artistic activities through which the expression style of patients is evaluated. Artistic practices are adopted in both the treatment processes of mental patients and their adaptation to the society since creativity allows unconscious material to emerge and positive behavioral changes can be achieved by working on it. Moreover, not only the creativity of a person but also the creative products of other people facilitate the healing process by creating insight and catharsis through identification. Therefore, psychiatric nurses can improve the quality of the care they provide by creating an environment for patients which is suitable for communication and by taking appropriate steps using creative techniques.

Considering the effect of creativity on personal and professional development, it can be stated that it is an essential skill in psychiatric nursing. Creative practices enable patients to express their feelings and thoughts in different ways. Psychiatric nurses need to improve their creativity both for their own life quality and to provide patients with better care. Improving the working environment of psychiatric nurses accordingly may bring significant gains in the society.

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