

ACTION RESEARCH IN EDUCATIONAL SCIENCES

Editor

Prof. Dr. Abdülkadir Kabadayı



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Action Research in Educational Sciences

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FOREWORD

The theme of this year's book is *Action Research in Educational Science* 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 8 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. *Action Research in Educational Science* 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 I

RELATIONSHIP BETWEEN CREATIVE AND IMAGINATION SKILLS IN EARLY CHILDHOOD PERIOD

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1. Introduction

Is it correct to divide people into creatives and non-creatives, or to label children as creative and uncreative children in early childhood? Is it possible to fit creativity, which is a multidimensional concept, into a simple definition and explanation? Is creativity the same or to what extent is it similar from the perspective of a parent, educator, artist, craftsman, politician, or professional? Does creativity affect other skills in an individual or do other skills affect creativity? In which areas of development is creating more evident? Is there an age limit for the development of creativity? Can a relationship be established between the ability to dream and creativity? Which affects which? Do only creative individuals dream? Is it possible to be creative without dreaming?

When the historical process of creativity and imagination skills, which are among the skills of the 21st century, is examined, it is understood that they have undergone a great change in terms of the meanings attributed to these concepts. This change is seen in the concept of imagination as in the scope and content of the concept of creativity. The answers to most questions such as “Is creativity a skill? Is it making an invention? Is creativity a concept used only in the field of education? Or can it be used in a wide variety of fields?” vary in the historical process of the concept of creativity.

Sünbül (2002) stated that creative individuals had features such as self-confidence, risk-taking, high energy and passion for adventure, defying traditional limitations and prohibitions, having a playful and cheerful nature, and being willing and idealistic. Sungur (1997) stated that creative individuals were people who are not ordinary, do not feel obligated to comply with ordinary movements and thoughts, are careful, and have enough knowledge and experience to find solutions to problems. Üstündağ (2014) stated that dreaming, which is one of the characteristics of creative individuals, was a dominant feature. Creative individuals, with their many characteristics, pursue fantasy and dream constantly.

One of the most important skill areas that motivate children's creativity in early childhood is imagination skills. A necessary free environment and free thought should be provided for the development of children's imagination skills. Thus, the creative skills of children who develop imagination and can dream will naturally develop.

Creative individuals like to dream and live with these dreams, and this is one of their important characteristics that are accepted by everyone. Imagination enables people to take action and produce original things. Without these characteristics, people can not easily acquire and learn new things. Things that were once people's dreams have been turned into reality with creativity and presented to the service of humanity.

2. Creativity Skills from 21st Century Skills

Although creativity has attracted the attention of societies in every period of history, it has been seen as an intellectual process or product specific to naturally gifted people for many years. After the second half of the twentieth century, research on creativity revealed that every person has more or fewer creativity skills (Arioğlu, 1999). In this respect, it is not enough to deal with creativity only with today's dimensions to understand the scope. According to Wallas (1921), creativity was considered a concept included in education in Ancient Greece, and it was thought of as a skill that could not be developed and existed only in gifted people (Cropley, 1995). At the beginning of the twentieth century, creativity was understood as producing a tangible product and it was emphasized that only gifted people would be able to do this. In this regard, Galton explained creativity as one of the privileged features that are inherited from the individual and stated that these individuals adapt to the environment in the best way and are clearly distinguished from others in any area (Simonton, 2001). Guilford (1984) considered creativity as an innate feature.

Today, creativity is defined not as a talent possessed by a limited number of people, but as a skill that all people have and can be developed and maintained at the same time (Davaslıgil, 1994). There are several recent studies on how to develop the skills that exist in the individual, and creativity is among the skills to be developed. In addition, unlike in past ages, creativity is handled in a broader context. Today, it is recognized that everyone has the potential for creativity. It can be said that creativity is something that happens every day. In this regard, it is possible to further develop creativity skills. In many sources on creativity, although it is stated that creativity is a complex concept, it is also stated that it is an important skill that offers the opportunity to open new windows to individuals and society from a broad perspective (Boden, 2004). Creativity has been dealt with within the scope of art and literature for years, and for a long time, it has been considered a privilege or a quality of scientists or inventors who make inventions in science and technique. Although it has shown itself in fields such as architecture, advertising, and art in the past, it is considered a key concept in the development of many fields from education to the economy, from health to technology in the twentieth and twenty-first century (Koray, 2005; Kanlı, 2017). Today, it is possible to see the concept of creativity not only in education but also in every field of life and different professions (Bateson and Martin (2014). In various resources and various fields of application, the concept of creativity is understood as creating out of nothing but is also named innovation, productivity, thinking differently, and originality. According to Bessis and Jaqui (1973), creativity does not just mean creating out of nothing. It can also be defined as the activities of creating new syntheses from the known and giving new identities to old ideas because a new idea is often either a combination of known ideas or a formulation of an old idea in a new way. Englebright Fox and Schirrmacher (2014) defined creativity as the ability to look and think from different perspectives outside of traditional ways, to combine seemingly unrelated things to create something new, to do something original, and to go beyond the given information to realize them, to go beyond the limits.

Creativity is creating a new idea by breaking the imposed line of thought, establishing a new relationship, finding something new that leads to other things, inventing a new unknown technique or method, and finding a tool or device that is useful to people, creating different and alternative solutions when faced with a problem, following a different path than others, breaking existing patterns, and going beyond the usual (Rıza, 2000). Sternberg and Lubart (1999) defined creativity as the ability to produce new, useful and applicable works originally and extraordinarily. According to Çeliköz (2017), the consensus

on creativity is that creativity is a new idea, different perspective, or original product, and creativity can be evaluated according to the result. By defining creativity in general, San (2004; 2008) defined creativity as inferring something new from what is known, reaching an original synthesis, finding new solutions to problems, being in a certain harmony, conformity and synthesis of qualities such as innovation, originality, extraordinariness, unusuality, being different. Creativity is a cognitive process and perception is important in this process. Perception is being able to be interpreted stimuli recorded by the sense organs in the brain.

Creativity is the process of being sensitive to deficiencies, problems, gaps in knowledge, and inconsistencies, defining difficulties, seeking solutions to problems, making predictions or producing hypotheses about these deficiencies, testing these hypotheses, retesting, and reaching a conclusion by changing these hypotheses (Torrance, 1974). When the definitions related to creativity are evaluated, it is seen that the common point is focused on the concepts of innovation, originality, invention, and the qualities such as new, original, extraordinary, extraregular, and being different are appropriately synthesized. Thus, creativity is understood not only to produce an original product but also to synthesize them based on existing information, to find different solutions to problems, to think outside of the ordinary, and adapt to new situations. Rawat, Qazi & Hamid, (2012); Shaheen (2010) focused their studies on creativity, creative thinking, and their education, especially in developed countries, and started to consider creativity and creative thinking as the main purpose of education.

The comprehensive conclusion we can draw from these definitions is that there is no single definition of creativity, and there can be many different definitions from different perspectives, and in this regard, it is an important principle not to be afraid of making mistakes and taking risks on the way to creativity. Education aims to raise individuals who can produce information, use the produced information functionally, solve the problems they encounter, think critically, are entrepreneurial, creative, have communication skills, and contribute to society. The qualities of the individuals to be raised naturally change and are updated from age to age. The change in science and technology and the expectations of the individual and society regarding this change should be met through education. As a result, the individuals to be raised should have these skills at the highest level and be able to apply these skills so that creative individuals and a creative society can be formed. It is not possible to expect

creativity, which is handled in such a broad context, to be at the same level in every individual. It is necessary to evaluate people with a high level of creative skills not only in an era but beyond the ages. So much so that their creativity and the products they produced changed the ages and had a great impact on societies, guiding and leaving traces for those who came after them. Although the number of those who have impacted and changed to that extent is not many, they have taken their place in history. Kaufman and Beghetto (2009) named this type of people as people with great creativity and stated that they came up with effective, great, and new original discoveries and products. Glaveanu (2011) pointed out that great creativity was not seen in everyone, and that this creativity also caused cultural changes in societies. It would be appropriate to define great creativity as the creative skills of world-renowned people, and we can give Picasso, Da Vinci, and Mozart as examples. Gregory, et al. (2013) stated that the great creativity revealed by great creative individuals did not develop further with experience and work overtime but already exists as a superior talent in individuals. Since not all creativity is great creativity, how should we name the ones that are not great creativity? Glaveanu (2011) named this type of creativity low creativity or everyday creativity. Low creativity is based on the activities of individuals in daily life and their ability to make life easier by finding different solutions to daily problems. According to Gregory et al. (2013), low creativity can generally be developed and shaped according to the fields of expertise of individuals and their experiences in working life. The programs of educational institutions and various training centers concerning different subjects and fields of activity, it is generally aimed to develop the small creativity of individuals. It is aimed to create new products by creatively blending the existing information and newly learned information in the learning process of individuals.

The concepts of innovation and creativity should not be confused with each other. The concepts of creativity and innovation are very close to each other and can be considered synonyms. However, they are different concepts. Creativity is put forth, innovation is put into practice. Creativity is the production of useful new ideas and information, and innovation is the implementation of these creative ideas. Therefore, creativity is the starting point of innovation. Creativity is essential for innovation, but it is not enough on its own (Amabile et al. 1996).

Although creativity is important today, there are various misconceptions about creativity in society (Fisher, 1995; Ruggiero, 1988; cited: Doğanay, 2012):

- The first misconception is that creativity usually only occurs in certain areas such as music, literature, and art. On the contrary, creativity happens everywhere in every field of life and other branches of science.
- The second misconception is that creativity requires advanced talent and intelligence. Various studies on creativity have shown that this is not the case. Just as highly intelligent individuals are not always creative.
- The third misconception is that creativity emerges out of the blue as a result of inspiration, and there is no need for an intense effort for creativity. On the contrary, an intense and continuous effort is required to produce a creative product.
- The fourth misconception is that creativity develops better and more as a result of the use of drugs. On the contrary, creativity develops in a free mind. The mind must work systematically and in a controlled manner, and drugs are a factor preventing this situation.
- The fifth misconception is that creative people are mentally unstable. On the contrary, it is necessary to have a healthier mind for creativity. The reason that leads people to such an evaluation may be that creative individuals exhibit behaviors different from the general norms and expectations of society.

When the relationship between creativity and various variables is examined, the first thing to consider is the relationship between creativity and intelligence. Because it is intelligence that is thought to be most associated with creativity. Generally, creativity was tried to be explained with intelligence and both concepts were identified. Although the childhood period is considered the most creative period, intelligence generally contributes significantly to creativity at all ages (Starko, 200; cited: İnal Kızıltepe, Can Yaşar & Uyanık, 2017). Creativity and intelligence can be discovered and developed with appropriate environmental conditions and education. These are mainly innate abilities of individuals. However, according to the results of many studies on creativity and intelligence, a highly significant relationship between intelligence and creativity has emerged, but it has been stated that this relationship is not absolute. Although individuals must be at a certain level of intelligence for creativity, it is difficult to say that individuals with creativity have a high level of intelligence (Özerbaş, 2011). Getzels (1975), on the other hand, emphasized that intelligence and creativity are directly proportional and that individuals are more successful in creative activities as the level of intelligence increases (Can Yaşar, 2009). Although there

were researchers who state that it is little or no relationship between creativity and intelligence, most of the studies revealed that the relationship between creativity and intelligence was valid up to a certain intelligence level, and this relationship disappeared after a certain intelligence level (Erten Tatlı, 2017).

Another variable associated with creativity is age. Kara and Şençiçek (2015) stated that early childhood was the period in which many developmental areas such as emotional, physical, mental, artistic, social, etc. develop rapidly. The main problem in creativity education is that between the ages of 2-5, which includes early childhood, the creativity shows a 90% improvement, while from the age of 6-7, this rate can decrease to the level of 20%. Bogoyavlenskaya (2013) examined the changes in the creativity scores of students attending kindergarten and primary school, and in her study, it was observed that there was a decrease in creativity scores of six-year-old children when they started primary school. Toyran (2015) stated that environmental factors were the basis of this decrease. Because children who start school and enter a new environment recognize the rules and authority. For these reasons, there is a pause in creativity and a regression if the environment has negative conditions. Torrance also stated that when children started school, their creativity either stayed the same or started to decrease due to academic expectations and authority (Akar Gençer, 2014). Changes in environmental conditions, increase in experience as age progresses, socialization, the life of the education, and written and unwritten rules of society affect creativity positively or negatively. According to Argun (2012), it is a known fact that the periods of creativity develop in a gradual order. Every individual who is born with a creative feature is creative, but the opportunities provided to individuals, the environment, and the attitudes of individuals, regardless of their age, affect their creativity positively or negatively.

In response to the question “If creativity is a process, are there certain phases in this process? Are there components of the concept of creativity?”, Andreasen (2005) stated that creativity consisted of three components: individual, process, and product, and initiates creativity with the individual. In the process, the individual looks for a way of tackling a problem or a good question or a new perspective and conceptualization. When the problem is solved, when the answer is found, a product emerges and the process is completed. Chien and Hui (2010) stated that the creativity process consisted of fluency, originality, flexibility, and elaboration skills. Fluency, one of these components, is the ability of the individual to rank the thoughts about the solution of the problem, one after the other, when faced with a problem. In creativity, it is expected from the individual

to present ideas with different options and to propose alternative solutions. It is evaluated that he/she has fluency skills at the level where he/she can do these. Fluency is the fluent and rapid use of the information available to the individual at the time of need. Fluency is also the ability to find solutions quickly and generate lots of ideas. The flexibility component can be explained as the speed and ability of the individual to adapt to various conditions, events, situations, and people. An individual can change his position and situation. It is the ability to easily adapt to and accept a new situation. It is to realize free thinking by destroying the existing patterns and prejudices in the mind is a problem-solving process. Otherwise, mental rigidity occurs, which prevents critical thinking and creative thinking. Flexibility is the manifestation of creativity in different dimensions and making strategic changes when needed. The originality component is the ability to find different, unconventional, and untried ways and to produce solutions to the problems and questions faced by the individual. Originality is producing new and different ideas, introducing new ways, methods, and different materials for creative individuals, and creative individuals are both resourceful and willing in this regard. It is the ability to put forward specific reactions about an event or subject. The elaboration and enrichment component is the ability of individuals to examine a problem, question, or situation in all its details and to be selective about the situation deemed necessary. It is to analyze an event, situation, object, or information down to the smallest details, to reveal and evaluate its classification, order, similarity, and difference (Duman, 2011; Fisher, 1995; cited: Doğanay, 2012; Torrance, 1962).

One of the important elements of creativity is communication skills. Children who have a rich vocabulary and use the language correctly can express their feelings and thoughts to others correctly and appropriately through verbal, written, visual, etc. means (Rıza, 2001). Akkoyun (1993) stated that communication skills also expressed an empathetic way of feeling and thinking in creative individuals, especially in the sense of dreaming. Thus, putting himself in someone else's shoes and approaching events and situations from their perspective enables that person to understand and feel his feelings and thoughts correctly. Creativity is a matter of process and consists of several stages. These stages usually follow a certain order, but this order may not always work in the same way. Sometimes the stages can be parallel, and in some cases, skipings can be observed in the stages (Duffy, 1998). In the preparation stage, the needs and the situations that are desired to be realized are determined and defined systematically. Information about the problem, materials and what will

be used in the process, what will be needed are determined and collected. For this, multidimensional preparations such as necessary readings and benefiting from the experience, if any, are carried out. In the incubation stage, in which individuals let themselves relax after the intense preparation stage, it can be said it is somewhat stagnant for individuals. However, at this stage, after the preparation stage, the minds perform the thinking process and continue to work on the problem. This process can be continued subconsciously, in sleep, and original ideas for solutions can be put forward. At this stage, the extent of time is very flexible and it can take a very long time as well as a very short time. The precognition stage is the stage in which the thoughts and actions to solve the problem emerge suddenly as a result of the work done in the previous stages. It is the stage where alternative solutions to the problem become clear in the mind and a solution is found, and this stage is instantaneous. At this stage, thoughts for a solution emerge suddenly and correctly. In the evaluation stage, which is the last stage, the results are verified and a solution is brought, the ideas put forward in the precognition stage and the solution proposals for the problem are analyzed. Whether the ideas put forward are suitable for the purpose and whether they are valid or not being tested. According to the test results, if there are deficiencies or faults, final corrections are made. In terms of the nature of this stage, it is a difficult stage as a logical and conscious study should be carried out. Self-confidence and determination in work are important to successfully perform this stage.

3. Imagination Skills from 21st Century Skills

The creative process begins with the existence of some concepts in the mind and the flow of ideas fed from these concepts. Knowledge, culture, perception, need, and demand is some of these concepts. Imagination is also an important factor that motivates the individual for creativity. Imagination is effective at every stage of the creative process, especially at the beginning and implementation stages. It is possible for an individual to have different perspectives and to use their imagination effectively with the effect of hereditary and environmental characteristics, knowledge, and experiences. To dream is to act by isolating oneself from the real world and concrete events, not to limit oneself to the perceived world, to synthesize by integrating experiences and perceptions, to pretend, to think about things that have not yet happened but may happen, to internalize perceptions and facts, to attribute new meanings to real situations and objects (Duffy, 2006). According to Hoff, dreaming is the ability to visualize

an object or a situation that can not exist at that moment with all its details (Gündoğan, 2011). When examining how scientists and geniuses make their discoveries, it is seen that they have the ability to associate things that are not related to each other. Such people achieve the impossible by connecting even unrelated issues that others see as impossible or even unthinkable (Michalko, 2008). Dreaming is a way of decoding information. In other words, it is a natural way of thinking (Taylor & Wilson, 2005).

Imagination comes from the ability to create and play games. All science and inventions have developed and are developing depending on the imagination of humanity (Duffy, 2006). Imaginary games in childhood are the first fruits of imagination. Children can use any object they find around them as imaginary products in their games. Play is the act of imagining by “pretending to”. When children pretend to be in their play, they do not completely distort reality; they create an alternative world that carries the requirements of the real world. They can play games by thinking their mother’s slippers are like a bus, and the bottom of the desk is like a room. While the game teaches the child to take risks and try new ideas imaginatively, the roles in the imaginary games give the child the opportunity to explore their feelings (Gündoğan, 2011). Imagination is the ability to interpret the traces of existence in the mind and become visible. A child whose imagination is fed develops in many ways. He not only can express himself better and has new mental schemas in the face of situations but also turns into a designing individual. This designer mind can realize what it dreams of by building it with knowledge. It must be remembered that not only art but all developments in science and technology today were processes that were once designed only by the human mind. Since children learn a lot from the dramas they create in their real and imaginary worlds, they are happy to have the games they construct supported by their parents. By taking a role in these plays themselves, descending to the child’s level and supporting the child’s acting aspects and interests in theater, and most importantly, creating opportunities for the child to be interested in any branch of art will make it easier for the child to dream (Karabay, 2018).

A situation that is not new and does not create excitement for adults arouses unlimited curiosity and desire to learn in children, which feeds their imagination. Since each child’s perception and imagination are different, they can each create their world. Their dreams are so strong that they may not fit in time and space and they can change the classical things, routines, and monotony. Imagination gives the child such power that they think that they can dominate everything by assigning different meanings to something.

Children's dreams are not yet constrained by concrete reality. It is as abstract as possible. It is a fantasy, boundless, and endless. Children's curiosity knows no bounds, and the most ordinary traces and signs can suddenly arouse their curiosity. Children reflect their nature and imagination. Everything in this world turns into a game (Baudelaire, 2003). Children discharge their wishes and desires, which are blocked in real life, by dreaming and realizing in imaginary games (Duffy, 2006). Whatever it is that adults seek solutions to problems, so is imagination for a child. The child first imagines a situation, an object, or an invention, and then discovers it. Imagination and pretend play are extremely important for the acquisition of artistic skills and the development of social skills.

Imagination is the ability to form mental images of perceived objects or objects that do not exist or do not exist at the moment. Imagination is also considered the resource of creative thinking and a wide variety of mental activities such as "assuming, seeing as, thinking of possibilities, etc." (Budak, 2000). Imagination can be defined as the ability to design an object or a situation in the mind where that object and situation do not exist, and the ability of the mind to imagine. Imagining, which is realized by employing imagination, is to mentally reveal a situation that did not exist beforehand, but by predicting or anticipating a desired or expected situation. The ability to imagine is part of mental functioning. In the process of imagination, objects or events perceived through the senses are brought to consciousness and make sense. Imagination means the traces of sensations and perceptions left in the mind. Sensations and perceptions are forced into the mind. Dreams are free and living. Sensations and perceptions cooperate and collaborate, and dreams are independent. The images that emerge during the imagination process have a subjective structure and have different meanings and values for each person. With the ability to imagine, one goes beyond daily life. Imagination includes phenomena such as seeming meaningless in daily life, differentiation of the known limited structure of reality and creating alternative thoughts by bringing together unrelated and meaningless parts.

In psychology, it is accepted that imagination provides mental and emotional relaxation in individuals and has positive functions such as setting goals for the future. Perception processes and perceptual arrangements are very important and closely related to each other in natural imagination skills. There are also studies showing that perception and imagination take place in the same areas of the brain (Pallasmaa, 2009).

In the context of children's cognitive development processes, fantastic genres of children's literature products such as jokes (Kabadayı, 2005), riddles

(Kabadayı, 2007), lullabies (Kabadayı, 2009), counting-out games (Kabadayı, 2014), finger games (Kabadayı, 2017), Fairy tales (Kabadayı&Doğan Kirişçigil, 2021) are sine qua non for the development domains of the children, and it is extremely effective in the development of all their images directly and their creativity in their cognitive and verbal capacity. These stimuli enrich the child's imagination. First of all, fairy tales and other fictional genres are the real worlds of the child. Children with limited life experience can make imaginary friends and discover new worlds through these genres. Everything that will be done in this context develops the child's imagination and give new experiences. It is important for children to be free and to support their imagination skills in developing imagination in the context of creativity or carrying this existing power further. The story, poetry illustration, play, writing what is dreamed, putting oneself in the place of another living thing or object, and going to the future are important activities in imagination. During these activities, methods, and techniques such as brainstorming, problem-solving, and concept maps can also be used. Another factor that supports imagination is art. Art allows for the expression of creativity and individuality. Thanks to art, children are freed from mediocrity and monotony, and they are enabled to be creative and productive individuals of the future. They reveal and display their imagination through art. Thus, new ideas emerge by realizing imaginary experiences thanks to the child's point of view and rich imagination, although not through direct experience, and it may be possible for the children to think multi-dimensionally and increase their presence. Feeney and Moravcik (1987) stated that if children's imagination, creativity, and aesthetic feelings are not supported with art education in the early years, they will be prevented from being creative, productive individuals who perceive the beauty around them in the future. Orhon (2014) stated that art, literature, technology, architecture, food culture, sports, fashion, customs, mystical beliefs, customs and traditions, and even self-perceptions are formed within the scope of imagination that is beyond the physical limits of the earth and extends to infinity. The ability to imagine is a skill that becomes dormant as children grow. Judgments that limit and despise our imagination, such as "imagining too much, you are in a fantasy world, you are living in a fantasy world" are obstacles to imagining. It is a skill that weakens and disappears as age progresses, although it is used a lot in early childhood due to the negative judgments of society and the education system's disregard for the subject. Imagination is a mental process that can evolve with use. Imagination prepares the mind and convinces individuals that

they can achieve their goals. The more actively this process is used, the more imagination develops.

Children set stories using their own experiences and imaginations. Through stories, children begin to establish a cause-effect relationship by imagining events that have been or could be experienced in their minds. Thus, children's cognitive skills such as understanding, listening, reasoning, associating with each other, and making connections about events develop. In addition, stories also contribute to children's creative thinking and imagination skills (Karatay, 2007). Unstructured materials are materials that the child can give more than one meaning to by feeding on their imagination, likened to different objects, and that are limited and do not serve a specific purpose. Since these materials do not serve a specific purpose, children can attribute different meanings by including these materials in an event in their dreams or by associating them with any other material they want (Mirzeoğlu, 2015). Telling stories with unstructured materials are stories that the child creates based on their imagination, life, and experiences by going beyond the stories told to them by other people. Since unstructured materials do not have a single function and what they will be likened to is left entirely to the child's creativity, the content of the stories that emerge is different for each child. The more diverse stories and words are presented to children in early childhood, the more opportunities they are given to express themselves and the richer the child's dreams will be (Fekonja et al. 2010).

4. The Relationship Between Creativity and Imagination

Craft (2003) explained creativity as a lifelong ability and defined it as the capacity to express oneself, and use intelligence and imagination. In this definition, there is a relationship between creativity and imagination.

Imagination is one of the most important elements of creativity in the creative process. Children activate their imaginations and set stories based on the pictures they look at (Koç et al. 2015). While doing this, the children realize their creativity, which is the most important talent, as well as their imagination. Torrance stated that many branches of arts such as music, drama, painting, and theater were effective especially in the development of the child's social life and creativity at an early age.

Art education especially helps children to realize the ideas they develop in their imagination. To see objects and events only does not make sense to people. Dreaming about them and seeing them differently from ordinary people

reveals the difference between the person. Imagination means seeing with the power of the mind. Dreaming certainly is one of the essential qualities of human intelligence (Robinson, 2003).

Dreaming is the first level of development. Objects turn into the known and assumed meaning for the child in childhood. When children reach the age of 6-12, they become more interested in reality itself and its meaning, rather than using their imagination or pretending. At this age, the other side of imagination, logic, is added to perception. In adolescence and adulthood, metaphorical and illogical imagination begins to appear. Since childhood is the period when imagination is most intense and childhood fantasies differ markedly from adult reality, childhood imagination is richer than adults. Fantasy and imagination decrease as the child ages (Vygotsky, 2004). Creativity is formed by the elements such as imagination, curiosity, and enthusiasm, which are found to the maximum extent in children, and this causes these elements to be a resource in creative activities (Argun, 2011).

One of the most important characteristics of creative individuals is their ability to dream. Creative individuals can present an abstract or concrete innovation and originality, different from the existing general thinking style. Creative individuals, who use their imagination effectively, can present different examples both during the process and in terms of the end product. In creativity, especially in cases where imagination comes into play, imagination reveals changes thanks to the activities that take place in the mind physiologically. Imagination can be effective at every stage of the creative process. Imagination, which can be effective in the whole process, improves the individual's ability to look from different perspectives, thanks to the experience and knowledge gained with the hereditary basis of the individual.

Creative individuals are curious, patient, imaginative, can think with images, adventurous, inventive, inquisitive, willing to experiment and research, and who inquire and make synthetic judgments. One of the most important characteristics of creative individuals is that they like to dream and live with these dreams (San, 1985).

Doğan (2015) stated the characteristics of creative individuals as follows: They are successful, curious, and skeptical. They do not need to be very intelligent and they have a medium level of intelligence. They can generate enough numbers of ideas quickly. They are willing and diligent in problem-solving. Their self-perception is high and positive. They have empathetic thinking. They do not need the approval of a person or group, so they are independent. They are flexible, not dogmatic. They dream and want to live with these dreams.

San, (1985); Starko (1995); Getzels (1975) stated that creative individuals are proud, humble, adventurous, curious, playful, cheerful, courageous, energetic, idealistic, and determined, and they like to take risks and are individuals with high self-confidence. Their fantasies are between imagination and reality, they are open to new experiences, and they have a high power of observation. They are independent. They like to be alone and, if necessary, they can work for a long time. They can think deeply. They can have positive self-perception, logical thinking, openness to new ideas and criticism, fluency in expression and thought, quick thinking and acting, aptness, discipline, joy, and responsibility altogether.

One of the foremost qualities of creative individuals is that they dream. Creative individuals are intellectual, entertaining, chase fantasy and constantly dream (Üstündağ, 2014). Imagination and creativity are directly related, and imagination develops creativity with its mental and emotional dimensions. Lindqvist (2003) pointed out that Vygotsky explains this situation as follows: imagination takes parts of reality, changes them, transforms them, and reintegrates them into reality by shaping them differently. Edelman and Tononi (2001) expressed that every act of perception was also an act of creation.

Recognizing, questioning, making sense of life, curiosity about a new situation or object, and the desire to experience life with everything around children give them mental skills and new meanings. It is sometimes a word, a game, a fairy tale, and ultimately a new world for them. Although the things that children experience and learn do not exist for the moment, their imaginations are capable of keeping them alive, creating, developing and enriching them because their imagination skills enable them to establish a connection between their past lives and their present and future lives. It is with these powers that the skill of creativity is activated.

Children's environments, experiences and perceptions become recognizable over time and begin to make sense. There is an ever-increasing and developing awareness. As this process is different for each child, the permanent traces formed in the mind are also personal. The experience and knowledge of the child develop the ability to dream. Thus, the ability to dream turns into physical, verbal, and artistic products, and the creativity of the child develops exponentially with a free upbringing style and environment.

The children create reality first in their dreams and then in the outside world. The books they read, the poems, the pictures they see, the movies they watch, and the tales they listen to combine with their imaginations. The wider the imagination of children and the stronger their dreams are, the more they

change the space and time they are in and create their fantasy world. Hall (2001) described dreaming as a rehearsal and imitation of real life. In dreaming, everything looks and sounds as if it is real. Movements can be felt, sounds can be heard, and tastes and smells can be visualized. Aldemir (2013) pointed out that dreaming included not only visualizing in the mind but also experiencing the situation envisioned in our minds with all sense organs. Imagination is a thought process, a new skill is learned or a known skill is developed, and there is creativity in it. Creativity skills develop thanks to imagination, and as a result, there is production in this process. Dreaming and making assumptions are parallel to the creative process. The intuition, imagination, images and experiences involved in the creative process are in unity and interaction, and this encompasses all of human life and activities.

Dreaming is one way children discharge their emotions. Children's cognitive and perceptual development is directly proportional to their imagination and creativity (Piaget, 2004). Children imitate real life in imaginary games. According to Vygotsky (2004), a child's play is not only the imitation or reproduction of real life but also it is reprocessing with creativity.

Children who can use their imagination can develop their creativity. As a result, they achieve the following (Duffy, 2006):

- Ability to evaluate the unexpected things and adapt the information available to the new situation,
- Ability to create alternatives by combining unconnected information,
- Ability to use existing information in new ways,
- Creating new problems and solutions,
- Ability to think flexibly and generate ideas,
- Ability to empathize with others,
- Ability to collaborate with people with different ideas,
- Ability to take risks and be innovative
- Ability to evaluate mistakes and make inferences from them,
- Ability to struggle with challenges by using imagination.

According to McGilchrist, perceptions are not automatic results of sensory mechanisms. They are the primary projections, interpretations, products, and creativity of intentionality and imagination (Pallasmaa, 2009). The driving force that motivates the emergence of creativity is the imagination of the individual. Hereditary characteristics of

individuals and environmental conditions determine their ability to be creative and to use imagination.

Scientific studies are based on a certain intelligence, imagination, talent, patience, and courage. It would be a deficiency to consider imagination separately from creative intelligence in the production of scientific knowledge. Therefore, instead of separating these two concepts from each other, it is necessary to evaluate them by bringing them together. Creativity and imagination form the basic elements in the production of scientific knowledge and product. Creative intelligence and imagination in the production and acquisition of scientific knowledge are the earliest roots of scientific studies because a scientific product requires a creative mind and a unique imagination. Creativity and imagination are two skills that prepare the necessary equipment for a scientific study. Imagination and creativity are important factors in the production and development of scientific knowledge. In addition to creative intelligence, a good imagination is necessary for science. In short, creativity and imagination play an active role in the production and development of scientific knowledge, and they made what science and technology today are by putting that into facts.

Although creativity and imagination are two skill areas that can settle with each other, creative intelligence is a more limited area than imagination. The reason is that while creative intelligence concentrates on existing and concrete facts, imagination has a scope that is unlimited and unrelated to realities. Creative intelligence is more concrete than imagination in the implementation phase. Imagination, on the other hand, is not completely utopian but tries to find a place for itself in the universe within the framework of reason and logic.

There may be obstacles to dreaming. The inhibition of dreaming also means that the individual is prevented from being creative. The fact that the individual does not change to gain certain statuses, advantageous situations or interests in the face of certain judgments of the society and does not make an effort to be a different person is an obstacle to dreaming. It is a major obstacle for the individual not to dare to be different and act differently, even though he knows that he will not face a sanction when it is not compulsory and that he does not have the courage to at least get rid of stereotypes to a certain extent or to change them (San, 1985).

In various studies, the main factors that hinder creativity were discussed. (Cited: Erten Tatlı, 2017; Sungur, 1997; Sünbül, 2011; Rıza, 2000) defined perceptual barrier, emotional barrier, cultural barrier, ego barrier, fear barrier,

educational barrier, learned barrier, strategic barrier, value barrier, and thought barrier as factors that prevent creativity. These factors create perceptual barriers such as not being aware of the problem, narrowing the problem area, insufficient observation skills, not being able to see the relationships, not perceiving the cause-effect relationship, etc. Fear of being criticized or making mistakes create emotional barriers such as impatience, desire to get results as soon as possible, addiction, fear of control, being prejudiced, fear of success, and self-confidence. While different cultures encourage creativity in some subjects, they may hinder creativity in some subjects.

Learned social habits and customs may be among cultural barriers. Attributing stereotyped meanings to events or objects, getting used to using objects in a certain way, taboos, and phobias are among learned barriers. The strong ego that comes with a certain belief pattern can make things worse and push people to become aggressive defenders of these false beliefs. This situation can harm both the formation of personality and creativity, and this creates the ego barrier. People may be afraid of expressing themselves or the negative judgments of others, and this situation restricts an individual's creativity. These are fear barriers. Theoretically, as the level of education increases, the level of creativity is expected to rise. However, negative educational environments can reduce creativity. Over-educated people, who see, overcome or learn the dangers of error and failure throughout their education and academic lives may be less creative, in a way, due to the "glass ceiling syndrome". These are educational barriers. Avoiding flexibility by accepting the correctness of a single answer and accepting the results of the experiences gained from previous learning as correct without questioning are strategic obstacles to creativity. Individuals' personal beliefs and strict adherence to values create a value barrier to creativity. Individuals' distrust of their thoughts and their reluctance to convey their thoughts to others are thought barriers that prevent creativity.

5. Conclusion

Creativity and imagination are 21st-century skills that focus on the future, not the past. In other words, it is to tend toward what will happen rather than what happened, and it is about the future. It can be said that there is a relationship between the development of a society and the creativity of individuals. The existence of creative individuals makes an important contribution to the development of society in science and art. Adults who offer free environments and rich experiences to children in educational institutions and families and

do not suppress them greatly support children's imagination, critical thinking, and development of creativity. In this regard, knowing these characteristics of children related to their imagination and creativity skills makes it possible to develop their imagination skills and, naturally, to develop their creativity.

Children need to use their imaginations freely without being restricted or hindered in their learning, curiosity, and desires in terms of achieving concrete results and their development. Children, who create new worlds for themselves with their imagination, have the opportunity to express themselves by using a language related to this world. The child does this without the need for an object or a situation, and it is a situation that supports the development of the child as much as possible. It is enough just to be allowed to think freely and dream.

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CHAPTER II

INVESTIGATION OF THE SCHOOL ADJUSTMENT OF THE PRESCHOOL CHILDREN IN ORPHANAGE

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1. Introduction

As it is known, with its broadest definition, the family is one of the most important and main formations of the basic building blocks of social life. The family is of such vital importance to society that the child who grows up with love and understanding in harmonious relationships, in a safe family environment, matures and gains personality. As he is loved, his sense of trust is strengthened, as he is supported, his self-esteem increases. He learns to be tolerant as he sees understanding and to act independently as he takes responsibility. The behaviors he adopts in the family direct him to society. In short, the most important factor that secures mental health is the childhood years lived in a warm family environment (Yörükoğlu, 1992). The love, balanced care, and nutrition shown by the parents develop the child's basic sense of trust and if there are positive impressions in his relations with the parents during these years, he behaves in a similar way towards others. In short, the child reflects the social behaviors directed to him in the family. If the child's relationships outside the family are also negative, if he has been rejected and pushed in these relationships, he will not want to repeat such social relationships. Positive social relationships are repeated. Happy social experiences encourage children to repeat their social experiences (Işık, 2007).

In other words, it is inevitable for children who are deprived of the closeness and love of the family home and the affection and warmth of their parents, to be exposed to personality development disorders, be unable to adapt to society and have some deficiencies in terms of development (Yıldız, 2002). The most effective social unit in the education of preschool children in the family. A healthy relationship between family members directly affects the physical, emotional, and social world of the child (Yılmaz, 2005). The healthy development of the child aims to consider him as a whole in terms of physical, emotional, mental and social aspects. However, in practice, the emotional aspect and importance of development are often overlooked. Today, it is known that the emotional life of the child develops before his/her mental life and constitutes an important source of mental and psycho-social development (Şermin, 1977). Children who are deprived of this warm family environment for some reason can be expressed as children in need of protection. In the field of children in need of protection, the main goal is to reintegrate children and young people into society. The main goal is for a child whose personal and social development is in danger to participate in society as a developed person in line with social goals. Orphanages are formal institutions that provide shelter for children who do not have a family and whose families cannot take care of them for some reason. Among these, mainly economic reasons, death of the parent, mental illness, divorce, and abuse of the child can be counted among other reasons (Yağmurlu et al., 2005).

1.1. Situation of Children in Need of Protection in Turkey

The only institution responsible for the care and protection of children in need of protection in our country is the Social Services and Child Protection Agency (Onat, 1994). According to the SSCPA Law No. 2828, which entered into force in 1983, the child in need of protection; “If their physical, mental and moral development or personal safety is at risk:

- a) without a mother or father, without parents,
- b) Unknown mother or father or both,
- c) Abandoned by his mother or father or both,
- d) It is defined as children neglected by their parents and left defenseless against all kinds of social dangers such as prostitution, begging, using alcoholic beverages or using drugs, and dragged into straying (www.shcek.gov.tr).

Applications by family members and relatives to SSCPA Directorates or news published in media organs are also accepted as notifications by SSCPA Directorates.

The situation of children in need of protection, who are reported to SSCPA Directorates, is evaluated by experts, and they are placed in the nearest SSCPA institution appropriate for their age and gender, with a court decision. Institutions serving under SSCPA, where children in need of protection can be placed; are kindergartens, orphanages, care and rehabilitation centers and child and youth centers. According to the January 2013 statistics of the Ministry of Family and Social Policies, General Directorate of Child Services, 7532 children are cared for in 737 Children's Homes and Nursery Centers with a total capacity of 8994, addressing the 0-12 age group. In addition, in 45 Houses of Love with a capacity of 4009, the number of children being cared for is 3304. When the age range is increased to 0-18, 13677 children are served in 847 kindergartens and orphanages in Turkey (www.cocukhizmetleri.gov.tr). At this point, the most general aims of kindergartens are; it is in the form of ensuring the physical and psycho-social development of children aged 0-12 in need of protection, enabling them to be educated, and gaining a healthy personality and good habits (Yıldız, 2002). Many national and international studies have revealed that children living in orphanages cannot develop language, physical and cognitive development, while other studies show that they cannot develop socio-emotionally (Ellis et al., 2004; MacLean, 2003; Vorria et al., 2003; Zeanah et al. et al., 2005). The period in which the child's learning is most intense, basic habits are acquired, and mental abilities are rapidly developed and shaped is between 0-72 months (Kabadayı, 2001; Kırca, 2007; Kabadayı, 2014). The direction of development at an early age affects the child physically and mentally in adulthood as well, that is, the development at an early age affects the individual for a whole lifetime (Mustard, 2003). Social interaction experiences at an early age are formatted neurologically and affect individuals' behavior, health, and learning styles at later ages. For this reason, these stimulations at early ages affect the language and mental development of the individual directly and indirectly. In other words, deprivation of some aspects of an individual at an early age means that its effects will be felt for a very long period (Elder, 1998). In their research on children, they state that the mental health of children who grow up deprived of their mother's love deteriorates to a level that cannot be compensated in the future. In addition to creating a suitable environment for the child, foster family care also functions as a re-adaptation for children who have experienced negativities due to a lack of family (Yıldız, 2002).

According to Kağıtçıbaşı (2007), the importance of intervention at a young age, the earlier and more intense the intervention, the greater the positive outcomes of the child's development. Levi (2008) states that deprivation at an early age is even more dangerous than deprivation at a later age and negatively affects all developmental areas of the child. However, many studies show that the care in kindergarten is not at the desired level qualitatively. To determine the effects of care in the institution on child health, this research was conducted on 51 children in the 3-6 age group living in Kayseri Social Services and Child Protection Agency kindergarten and 63 children in the same age group living in a family environment and staying in Erciyes University kindergarten during the day. As a result of the research, it was concluded that some complaints are more common in children living in kindergartens and that approximately one-third of these children have insufficient height and weight development (Karakayalı, 1994). In addition, the findings obtained in a study revealed that the students staying in the orphanage have some deficiencies that arise from the dormitory environment and require psychological services (Kutlu, 1992). It cannot be said that the living conditions are at the desired level in these dormitories, which are supposed to be a warm homes for children. Because in Turkey, the ward system works, where many children sleep and play in the same dormitory. In these dormitories, toys are extremely limited and far from the home environment that the child misses (Yağmurlu et al., 2005). In another research that supports this point, children in need of protection, who grow up in kindergartens or orphanages without family and especially mother care from a very young age, often carry the negative effects of 'institutional care' (Bıyıklı, 1982). One of the residents of the orphanage said, "The biggest problem is; the fact that he used an expression such as "no love, no love, no love" reveals the lack of this feeling in the best way (Gürsoy-Aral, 2001).

1.2. The Importance of Research

With this study, the subscale mean values and percentage tables calculated for the age and gender groups of preschool children (42-73 months) are important for early interventions to be made to detect and prevent behavior problems in children.

1.3. Purpose of the Research

This study aims to investigate the school adjustment of children living in orphanages and attending pre-school institutions in terms of various variables based on teacher opinions.

The questions to be investigated with this research are;

1. What is the level of school adjustment of girls and boys staying in orphanages and attending pre-school, based on teachers' opinions?
2. What is the level of adaptation to the school of children aged 5-7 who live in orphanages and attend preschool, based on teachers' opinions?

2. Method

In this study, a surveying model was used as a method. The data obtained based on the teachers' opinions were transferred to the SPSS 15.0 program and evaluated in the 3 sub-dimensions of SCBA - 30 Scale "Anger-Aggression", "Social Competence" and "Anxiety-Introversion".

2.1. Working group

The study group of this research is Mevlana Primary School, Mixed Primary School, Mehmet Şükriye Sert Primary School, which is affiliated with Konya Provincial Directorate of National Education, pre-school student teachers and candidate teachers. A total of 30 preschool children (19 girls, 11 boys) and 5 years old (5), 6 years old (19) and 7 years old (6) participated in the study. 30 preschool practice and candidate teachers participated in the research. The average age of the novice teachers participating in the research is 23.5 and the average age of the practice teachers is 33.4.

2.2. Assessment tools

To determine the school adjustment of 30 children attending a preschool education institution, Butovskaya et al. (2002) "Emotional, behavioral and social adjustment screening in preschool period: Social Competence and Behavior Assessment- 30 (SCBE - 30)" scale was applied. The SCBA – 30 scale has 3 sub-dimensions as "Anger-Aggression", "Social Competence" and "Anxiety-Introversion" and consists of 30 items. The scale was translated into Turkish by Çorapçı, Aksan, Arslan, and Yağmurlu (2010), and internal consistency and test-retest coefficients supported the reliability of the scale. It has been revealed that the three-factor structure of the original scale is suitable for the Turkish sample as the main dimensions of Anger-Aggression, Social Competence and Anxiety-Introversion. Written permissions were obtained from the authors to use the Turkish form and original forms of the scale in this study. The findings

of the study revealed that the SCBE- 30 is a short but comprehensive, valid and reliable surveying scale for identifying at-risk children at an early age and guiding them with preventive interventions. In the scale, the Never (1) - Always (3) triple Likert type evaluation system was used.

3. Analysis of Data

The mean values and percentage tables of the SCBA -30 scale (Anger-Aggression, Social Competence, and Anxiety-Introversion) developed considering the age and gender of preschoolers, and the following criteria are used to determine behavior problems in children (Çorapçı et al., 2010).

- a. A score corresponding to the 90th percentile of the Anger-Aggression (AA) subscale indicates that the child displays more angry and aggressive behavior than 90% of children in his/her gender and age group.
- b. A score corresponding to the 90th percentile of the Anxiety-Introversion (AI) subscale indicates that the child exhibits more anxiety and introverted behaviors than 90% of children of his or her gender and age group.
- c. A score corresponding to the 90th percentile of the Social Competence (SC) subscale indicates that more than 90% of children in the child's gender and age group have difficulty with social skills.

4. Findings and Interpretation

In this section, the findings of preschool students' school adjustment problems were examined in tables in terms of gender and age variables developed based on the SCBE 30 scale.

Table 3.1. SCBA Distribution of Preschool Students in Orphanage by Gender Variable in Anxiety - Introversion Dimension

	Female (n=19)		Male (n=11)		Level	
	\bar{X}	SS	\bar{X}	SS	A	L
Anxiety - Introversion						
19. Tired	1.78	0.71	1.81	0.60	1.80	**
3. Easily disappointed and angry	2.05	0,62	2.18	0.75	2.10	**
23. Unnoticeable in the group	2.36	0.59	2.54	0.52	2.43	***
21. Does not talk or participate in group activities	2.21	0.63	2.09	0.53	2.16	**
14. Separated from the group, stays on his own	2.21	0.63	2.00	0.44	2.13	**
8. Is sad, unhappy, or depressed	1.78	0.71	1.72	0.78	1.76	**
12. He is still and watches children playing from afar	1.63	0.68	1.36	050	1.53	*
7. Is shy, i.e. avoids environments and situations	2.15	0.83	1.63	0.80	1.96	**
4. He gets angry when his activity is interrupted	1.82	0.60	2.00	063	1.90	**
1. Facial expression does not show emotions	2.10	0.73	1.72	0.78	1.96	**
AI Average	2.00	0.30	1.90	0.24	1.95	**

Table 3.1. When the SCBA distribution of the preschool children attending the orphanage in the Anxiety - Introversion dimension is examined according to the gender variable in the Anxiety - Introversion dimension, it is seen that in the item “Unnoticeable in the group” (23), the girls and boys did not stand out and stand out with sharp movements in the group, and they adapted well to the group at this point (= 2.43). This may be a reflection of the fact that the children staying in the kindergarten have to share and cooperate in the kindergarten. In parallel with this article, (12).” The average score of the children staying in

the nursery is low (=1.53) from the item “He is still and watches the children playing from afar”. (7) In the item “Shy is timid, that is, avoids environments and situations”, it can be concluded that girls (= 2.15) are more shy and timid than boys (= 1.63), but generally they are in harmony with other children in interaction and communication (= 1.96). The children (19) who participated in the study did not seem tired (= 1.80); (3) Whether they are easily disappointed (= 2.10); (21) are assertive and active in group activities (= 2.16); (14) They were not isolated from the group (= 2.13); (8) They do not act very sad or depressed (= 1.76); (4) It can be concluded that they do not get angry when their activities are interrupted (= 1.90) and (1) that their facial expressions do not fully reveal their emotions (= 1.96).

Table 3.1. When the SCBE distribution of preschool children attending an orphanage in Ankara is examined according to the gender variable in the Anxiety - Introversion dimension, it can be concluded that the anxiety levels of girls (=2.00) are higher than that of boys (= 1.90), and they engage in an introverted behavior.

Table 3.2. When the SCBA distribution of the preschool children attending the orphanage in the Anger - Aggression dimension is examined according to the gender variable, in item (10), it is seen that the participants generally cannot keep their cool in the face of certain situations (= 1.63), but they behave aggressively even in the smallest things, but girls (= 1.52) It can be concluded that they can stay calmer in the face of minor events compared to boys (= 1.81). In item (16), it can be concluded that the children in the study group participating in the research did not act aggressively towards other children (= 1.53), and did not hit or punch them.

Table 3.2. SCBA Distribution of Preschool Students in Orphanage According to Gender Variable in Anger - Aggression Dimension

	Female (n=19)		Male (n=11)		Level	
	\bar{X}	SS	\bar{X}	SS	A	Level
28. Opposes teachers' suggestions	1.84	0.83	1.63	0.67	1.76	**
10. Shouts or screams at the slightest thing	1.52	0.61	1.81	0.87	1.63	*
5. Grumpy, quick to anger, irritable	1.52	0.69	2.00	0.89	1.70	**
16. Hits or kicks other children	1.52	0.69	1.54	0.82	1.53	*
25. When he gets angry with the teacher, he hits him or damages the things around him.	1.52	0.69	1.72	0.78	1.60	*
18. Gets into conflict with other children	1.50	0.60	1.90	0.70	1.70	**
9. Appears introverted or uneasy about being in a group	1.81	0.65	1.90	0.83	1.85	**
24. Forcing other children to do things they don't want	1.63	0.65	1.73	0.67	1.70	**
26. He gets worried	1.89	0.73	2.00	0.44	1.93	**
29. Resists when punished	1.78	0.85	1.90	0.94	1.83	**
AA Average	1.65	0.39	1.81	0.54	1.73	**

Parallel to this item, it can be concluded that in item (25), these children do not hit the teacher and the objects around them (=1.60) when they get angry, but that girls (= 1.52) remain calmer than boys (=1.72). In this case, it can be thought that strict discipline in the orphanage may also play a role.

It can be concluded that the participants (28) generally followed the teacher's suggestions and instructions (= 1.76), but boys (= 1.63) were somewhat lax in following these instructions compared to girls (= 1.84). In parallel with this item, it can be concluded that (18) boys (=1.90) can behave a little more aggressively towards girls (=1.50) towards their friends and rarely disagree. The result of item (5) in the study that boys (=2.00) get angry more quickly and get angry more easily than girls (= 1.52) supports the result that girls can stay calmer and calmer in the face of events. In addition, item (24) supports the following items above in favor of girls, as the result that boys (= 1.73) are more dominant in forcing other children to do things they do not want than girls (= 1.63).

Participants (26) stated that the anxiety levels of male and female participants were above normal, regardless of gender; It can be concluded that, regardless of gender, girls and boys (= 1.83) can react aggressively, albeit slightly, when they are punished.

Table 3.4. SCBA Distribution of Preschool Students in Orphanage According to Age Variable in Anxiety - Introversion Dimension

	5- year old (n=5)		6- year old (n=19)		7- year old (n=6)		Level	
	\bar{X}	SS	\bar{X}	SS	\bar{X}	SS	A	L
Anxiety - Introversion	\bar{X}	SS	\bar{X}	SS	\bar{X}	SS	A	L
19. Tired	1.60	0.54	1.78	0.71	2.00	0.63	1.80	**
3. Easily disappointed and angry	2.40	0.54	2.00	0.57	2.16	0.98	2.10	**
23. Unnoticeable in the group	2.47	0.61	2.16	0.40	2.60	0.54	2.43	***
21. Does not talk or participate in group activities	2.00	0.70	2.26	0.65	2.00	0.00	2.16	**
14. Separated from the group, stays on his own	2.20	0.83	2.05	0.52	2.33	0.51	2.13	**
8. Is sad, unhappy, or depressed	1.80	0.83	1.63	0.68	2.16	0.75	1.76	**
12. He is still and watches children playing from afar	1.60	0.54	1.36	0.68	2.00	0.00	1.53	*
7. Is shy, i.e. avoids environments and situations	2.20	0.83	1.78	0.85	2.33	0.81	1.96	**
4. He gets angry when his activity is interrupted	2.20	0.83	1.84	0.50	1.83	0.75	1.90	**
1. Facial expression does not show emotions	1.40	0.89	2.00	0.66	2.33	0.81	1.96	**
AI Average	1.98	0.25	2.07	0.31	2.17	0.17	2.07	**

When the SCBE distribution of preschool children attending the orphanage is examined according to the gender variable in the Anger - Aggression dimension, it can be concluded that girls (=1.65) can stay calmer than boys (=1.81) in the face of events, but boys are not as successful as girls in controlling their anger.

Table 3.3. SCBA Distribution of Preschool Students in Orphanage by Gender Variable in Social-Competence Dimension.

	Female (n=19)		Male (n=11)		Level	
	\bar{X}	SS	\bar{X}	SS	A	L
Social - Competence						
30. Takes pleasure in own achievements	2.15	0.76	2.72	0.46	2.36	***
22. He is wary of younger children	2.15	0.68	2.00	0.77	2.10	**
13. Seeks solutions to conflicts	1.89	0.80	1.90	0.70	1.90	**
6.Helps with daily chores	2.15	0.68	2.00	0.77	2.10	**
11. Works easily in a group	1.94	0.84	2.27	0.64	2.06	**
15. Takes into account the opinions of other children	2.00	0.74	1.69	0.52	1.84	**
20. Takes good care of toys and appreciates them	2.15	0.76	2.18	0.98	2.16	**
17.Works and cooperates with other children in group activities	1.84	0.76	2.00	0.63	1.90	**
2. Comforting or helping a child in distress	2.57	0.50	2.45	0.68	2.53	***
27. Reconciliation is reached when plausible explanations are made.	2.31	0.82	2.54	0.68	2.40	***
SC Average	2.10	0.49	2.17	0.44	2.13	**

Table 3.3. When the SCBA distribution of the preschool children attending the orphanage in Turkey is examined according to the gender variable in the Social - Competency dimension (30), it is seen that the participants are extremely satisfied with their achievements (= 2.36), but male students (= 2.72) are less successful than female students (=2.15). It can be concluded that they renew their social self-confidence as more satisfaction. The fact that the participants (2) console and help a child in distress shows how competent they are in the social sense (= 2.53). The fact that female students (= 2.57) are more sensitive than male students (= 2.45) at this point can be explained by the argument that it is due to the characteristics brought by gender. Item (27) shows that almost all of the participants are extremely agreeable when logical explanations are given to them (=2.53), but male students (=2.54) give more importance to plausible explanations in agreement than female students (= 2.31). In item 2, based on the characteristics of gender, it can be concluded that female students

behave more emotionally, while male students behave more logically (27). The children participating in the study were sensitive to younger children (=2.10) at a reasonable level (22) regardless of gender; (13) seek cooperative solutions to disputes (1.90); (6) they helped the institution and their friends in their daily work (=2.10); (11) can easily work with other friends in the group (=2.06); (15) were able to do activities by taking the opinions of other children in the group (=1.84); (20) protect their toys with care (=2.16); (17) can be concluded that they can work together by collaborating with other children in group activities. When the SCBE distribution of preschool children attending the orphanage is examined according to the gender variable in the Social-Competence dimension, the fact that boys (= 2.17) are more active than girls (= 2.10) and act slightly more outwardly, once again, the gender factor is an important factor on the data is visible.

Table 3.4. When the SCBA distribution of the preschool children attending the orphanage in the Anxiety - Introversion dimension is analyzed according to the age variable, in the item (23) "Not noticeable in the group", it is seen that the 5, 6 and 7-year-old children generally come to the fore in the group and do not stand out with sharp movements, they adapt well to the group at this point (= 2.43). However, considering the difference between the 5, 6, and 7-year-old children, it can be concluded that the 6 year old children seem a little more active in the group compared to the 5 and 7-year-old children. This situation can be explained by the fact that the children staying in the kindergarten can be disciplined and organized among themselves. Regarding this article, (12)." The average score of the children staying at the kindergarten from the item "He is still, watches from afar" is at a low level (=1.53), and because these children are in solidarity, sharing and cooperation with each other in the kindergarten, they generally do not show inconsistent and contradictory acts among the other children at school. However, in this article, it can be concluded that children aged 5 (=1.60) and 6 (=1.36) can be more involved in the game and group by acting more freely and naturally than children aged 7 (=2.00). It can be explained that the children participating in the research generally do not look tired (=1.80), but they seem less tired compared to 5 (=1.60), 6 (=1.78), and 7 (=2.00) age-old children, due to their unconditional dedication to the game. (3) with the result that the participants are generally easily disappointed (=2.10), but they are more easily affected by the tensions in friends, groups, or games due to the maturation required by age compared to 5 (= 2.40) 6 (= 2.00) and 7 (=2.16) year olds. It coincides with item (1) "Facial expression does not reveal emotions"

of this article. While the participants generally do not reflect their emotions on their facial expressions (=1.96), it can be associated with the previous item that children aged 5 (=1.40) reflect their emotions on their behaviors more easily than children of 6 (=2.00) and 7 (=2.33). (21) are assertive and active in group activities (= 2.16); (14) They were not isolated from the group (= 2.13); (7) They are in harmony with other children in interaction and communication (= 1.96); (4) It can be concluded that they do not get angry (= 1.90) when their activity is interrupted. Table 3.5. When the SCBA distribution of the preschool children attending the orphanage in Ankara was examined according to the age variable in the Anger - Aggression dimension, (10) almost all of the participants were able to remain calm and cool in the face of certain situations, (= 1.63) they did not act aggressively in small things, but 7-year-old children (= 1.33). It can be concluded that they can stay calmer in the face of minor events compared to 6-year-old (= 1.68) and 5-year-old (= 1.80) children. In item (16), the children in the study group participating in the research did not act aggressively toward other children (= 1.53), but whether 7-year-olds (= 1.66) hit 6-year-olds (= 1.42) and 5-year-olds (= 1.80) can be explained by their maturation status at their age. In an article (25), it can be deduced that these children do not hit the teacher and the things around them when they get angry (=1.60), and that the children aged 5, 6 and 7 remain calm in the face of such situations.

Table 3.5. SCBA Distribution of Preschool Students in Orphanage According to Age Variable in Anger - Aggression Dimension

	5- Year-old (n=5)		6- Year-old (n=19)		7- Year-old (n=6)		Level	
	\bar{X}	SS	\bar{X}	SS	\bar{X}	SS	A	L
Anger - Aggression	\bar{X}	SS	\bar{X}	SS	\bar{X}	SS	A	L
28. Opposes teachers' suggestions	1.67	0.89	1.89	0.73	1.50	0.83	1.76	**
10. Shouts or screams at the slightest thing	1.80	0.83	1.68	0.74	1.33	0.51	1.63	*
5. Grumpy, quick to anger, irritable	2.20	0.83	1.63	0.76	1.50	0.83	1.70	**
16. Hits or kicks other children	1.80	0.83	1.42	0.69	1.66	0.81	1.53	*
25. When he gets angry with the teacher, he hits him or damages the things around him.	1.60	0.54	1.57	0.76	1.66	0.81	1.60	*
18. Gets into conflict with other children	1.80	0.44	1.78	0.71	1.33	0.51	1.70	**
9. Appears introverted or uneasy about being in a group	2.30	0.54	1.88	0.65	1.90	0.84	1.90	**
24. Forcing other children to do things they don't want	1.67	0.54	1.68	0.71	1.59	0.54	1.70	**
26. He gets worried	1.80	0.44	2.05	0.62	1.66	0.81	1.93	**
29. Resists when punished	2.20	0.83	1.84	0.89	1.50	0.83	1.83	**
AA Average	1.88	0.47	1.73	0.40	1.55	0.59	1.71	**

It can be concluded that the participants (Item, 28) generally follow the teacher's suggestions and instructions (= 1.76), but children aged 7 (= 1.50) behave more sensitively in complying with these instructions than children aged 5 and 6 years. A similar situation (Item 5) supports the above item in terms of the age variable, in which children are generally calm towards their surroundings, but this behavior gradually decreases from 7-year-olds to 6- and 5-year-olds with age. In item (18), it is seen that all the participants can generally get along with other children (= 1.70), but this tolerance gradually decreases towards the ages of 6 and 5, starting from the age of 7. Item (9) the participants generally do not

behave gruffly and restless in the group ($= 1.90$), but it can be concluded that the level of introversion increases with age, starting from the age of 7 and 6 towards the age of 5. In the item (24), the participants did not force other children to do things they did not want ($= 1.70$), but starting from the age of 5, the children between 6 and 7 years old children of other children did not force democratic. It can be seen that the participants behave more respectfully towards their rights and that the age variable has an effect on the result. Item (26) shows that the participants generally do not get anxious easily ($= 1.93$), but it can be seen that the younger children aged 5 and 6 are slightly more worried and anxious than the children aged 7 years. (29) generally did not act rebelliously against the punishment given to them, but it can be deduced that they can tolerate this gradually starting from the age of 5, towards 6 and 7-year-old children. When the SCBE distribution of the preschool children aggression dimension, it is seen that the anger - Aggression actions of the participants gradually increase from the age of 7 ($= 1.55$) to 6 years ($= 1.73$) and 5 years ($= 1.88$). This result once again reveals that the age variable and maturity are important factors in controlling behaviors.

Table 3.6. When the SCBA distribution of the preschool children attending the orphanage in Turkey is examined according to the age variable in the Social-Competence dimension, it is seen that (30) almost all of the participants are extremely satisfied with their achievements, ($= 1.36$), from the age of 7 ($= 2.16$) to 6 ($= 2.40$) and it has been observed that these satisfactions of 5 ($= 2.41$) year old children gradually increase. Parallel to this, item (2) indicates that all of the participants generally console and support a child in need ($= 2.53$), starting from the age of 5 ($= 2.40$) and supporting children aged 6 ($= 2.52$) and 7 ($= 2.66$) in need of help.

Table 3.6. SCBA Distribution of Preschool Students in Orphanage by Age Variable in Social-Competence Dimension

	5- Year old (n=5)		6- Year old (n=19)		7- Year old (n=6)		Level	
	\bar{X}	SS	\bar{X}	SS	\bar{X}	SS	A	L
Social - Competence								
30. Takes pleasure in own achievements	2.41	0.54	2.40	0.76	2.16	0.75	2.36	***
22. He is wary of younger children	2.00	0.70	2.05	0.74	2.50	0.54	2.10	**
13. Seeks solutions to conflicts	1.70	0.44	1.70	0.74	2.66	0.51	1.90	**
6.Helps with daily chores	2.10	0.44	1.99	0.73	2.66	0.51	2.10	**
11. Works easily in a group	2.00	0.00	2.05	0.81	2.33	1.03	2.06	**
15. Takes into account the opinions of other children	1.67	0.54	1.68	0.67	2.50	0.54	1.83	**
20. Takes good care of toys and appreciates them	2.00	1.00	2.05	0.84	2.66	0.51	2.16	**
17.Works and cooperates with other children in group activities	2.00	0.70	1.99	0.73	1.93	0.75	1.97	**
2. Comforting or helping a child in distress	2.40	0.54	2.52	0.61	2.66	0.51	2.53	***
27. Reconciliation is reached when plausible explanations are made.	1.80	0.83	2.47	0.77	2.66	0.51	2.40	***
SC Average	2.00	0.37	2.09	0.47	2.47	0.41	2.18	**

When logical explanations are given to them in item (27), it is evident that almost all of the participants easily reach an agreement (=2.40), starting from the age of 5 (=1.80), the tendency of children aged 6 (=2.47) and 7 (=2.66) to agree with reasonable explanations increases. Another result that supports the effect of maturation at the age on social competence can be seen in item (15). It can be said that the participants generally take into account the opinions of other children (= 1.83), children aged 6 (= 1.68) and 7 (= 2.50) starting from the age of 5 (= 1.67) a more democratic tendency to consider the opinions of other children. In parallel with this, it was observed that the participants (22)

generally behaved carefully toward children younger than themselves (= 2.10), and the attention of children aged 6 (=2.05) and 7 (=2.50) gradually increased starting from the age of 5 (=2.00). In item (13), it is seen that the participants generally seek solutions to conflicts (=1.90), children aged 6 (=1.70) and 7 (=2.66) starting from the age of 5 (=1.70) tend to compromise with reasonable explanations. In item (6), it is seen that the participants generally help with daily chores (= 2.10), children aged 6 (=1.99) and 7 (=2.66) starting from the age of 5 (=2.10) tend to help with daily chores. In item (11), it can be said that the participants work easily and in harmony in the group (= 2.06), starting from the age of 5 (=2.00), the tendency of children aged 6 (=2.05) and 7 (=2.33) to work in the group increases with age. Parallel to this item, it can be concluded that the participants in item (20) protect their toys (=2.16), and children aged 6 (=2.05) and 7 (=2.66) starting from the age of 5 (=2.00) tend to look after and protect their toys with age. Item (17) revealed that the participants generally tended to cooperate with other children in the group and to work together in agreement (= 1.97). When the SCBE distribution according to the age variable in the Social-Competence dimension of the preschool children attending the orphanage is examined, it is seen that the Social-Competence tendencies of the 6 (=2.09) and 7 (=2.47)-year-old children of the participants gradually increase, starting from the age of 5 (=2.00). This result reveals that the age variable and maturity are important factors in increasing the level of social competence and socialization.

5. Conclusion

In this study, “Emotional, behavioral and social adjustment survey in the preschool period: Social Competency and Behavior Assessment - 30 (SCBA-30)” scale, based on the “Anger-Aggression”, “Social Competence” and “Anxiety-Introversion” sub-dimensions. The school adjustment of the children living in the dormitory and attending the pre-primary institution was investigated in 2 aspects, namely gender and age variables, based on the opinions of the teachers, and the following results were obtained.

1. When the school adjustment of the preschool children who stay in the orphanage participating in the research and continue to the preschool institution is evaluated in terms of gender, in the 3 sub-dimensions of SCBA-30;

When the SCBA distribution of the preschool children attending the orphanage is examined according to the gender variable in the Anxiety - Introversion dimension, it can be said that the anxiety levels of girls (=2.00) are higher than that of boys (= 1.90), and they exhibit an introverted behavior.

When the SCBA distribution of preschool children attending the orphanage is analyzed according to the gender variable in the Anger - Aggression dimension, it can be concluded that girls (=1.65) are generally calmer than boys (=1.81) in the face of events, but boys are not as successful as girls in controlling their anger. When the SCBA distribution of the preschool children attending the orphanage is examined according to the gender variable in the Social-Competence dimension, it is seen that the boys (= 2.17) are more active and enterprising than the girls (= 2.10) and exhibits slightly more extroverted behaviors, once again the gender factor is higher on the data. proves to be an important factor.

2. When the school adjustment of the preschool children who participate in the research and stay in the orphanage and continue to the preschool institution is evaluated in terms of age, in the 3 sub-dimensions of SCBA - 30;

When the SCBA distribution of preschool children attending the orphanage is examined according to the age variable in the Anxiety - Introversion dimension, it is seen that the Anxiety - Introversion tendencies of the children increase gradually, starting from the age of 5 (= 1.98), to the age of 6 (= 2.07) and 7 (= 2.17). This result clearly shows that the age variable and maturity are important factors in controlling behavior.

When the SCBA distribution of the preschool children attending the orphanage is examined according to the age variable in the Anger - Aggression dimension, it is seen that the anger - Aggression acts of the participants gradually increase, starting from the age of 7 (= 1.55), at the age of 6 (= 1.73) and 5 years (= 1.88). This result reveals once again that age variable and maturity are important factors in controlling behaviors.

When the SCBA distribution according to the age variable in the Social-Competence dimension of the preschool children attending the orphanage is examined, it is seen that the Social-Competence tendencies of the

6 (=2.09) and 7 (=2.47)-year-old children of the participants gradually increase, starting from the age of 5 (=2.00). This result once again supports the argument that the age variable and maturity are important factors in increasing the level of social competence and socialization.

5.1. *Limitations of the Research and Future Studies*

The study group of this research consists of a limited number of preschool students living in Mevlana Primary School, Mixed Primary School, Mehmet Şükriye Sert Primary Education Orphanage, affiliated to Konya Provincial Directorate of National Education, teachers and candidate teachers working in the mentioned schools. A total of 30 preschool children (19 girls, 11 boys) and 5 years old (5), 6 years old (19) and 7 years old (6) participated in the study. The study was conducted with 30 preschool teachers and candidate teachers, and preschool children aged 5-7 years old, girls and boys, and the scale of “Emotional, behavioral and social adaptation screening in pre-school period: Social Competency and Behavior Evaluation - 30 (SCBA - 30)”. is limited. By applying this research to primary school 1 and primary school 2nd level girls and boys, their problems of adaptation to society and the school can be determined. To obtain more concrete data from the research, more objective results can be obtained by making a double or triple comparison between the large study groups of the (SCBA - 30) Scale and the children living in orphanages, staying with foster families and staying with their own families. In addition, more detailed results can be obtained by conducting cross-cultural studies with different sample groups in different regions.

5.2. *Recommendations*

According to the results of this research, it was determined that the children who grew up in the orphanage had problems adapting to the class/school in some areas in terms of age and gender. It has been observed that these students suffer from focusing problems, truancy problems, aggression problems, adaptation problems to teachers and friends, and communication problems.

- The psychological development of children with low school success living in orphanages should be constantly monitored and recorded, and at this point, reparative measures should be taken.

- In addition, children need to be supported in solving their emotional problems and in finding solutions to various issues in order to cope with these problems.
- In order to accelerate their adaptation to society, these children should be supported by the teacher in the school and classroom environment.
- Various social activities and responsibilities should be provided by the school administration and parent-teacher association of preschool children.
- Training should be given to developing healthy communication and adaptation skills.
- A few sensitive, sensitive and educated foster mothers need to be deployed to orphanages.
- It is extremely important to equip the personnel at all levels in the orphanage with information on child development and to make them sensitive and sensitive at this point.
- Since Houses of Love and Children's Villages offer more home environment opportunities, these organizations should be expanded.

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CHAPTER III

ATTITUDES TOWARDS FUTURE, INTERNAL LOCUS OF CONTROL BELIEF, PSYCHOLOGICAL NEED SATISFACTION AS PREDICTORS OF SUBJECTIVE WELLBEING*

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1. Introduction

Youth refers to the transition period from childhood to adulthood, which is usually accompanied by intense personal searches, new experiences, identity formation and the struggle to achieve independence (Brown, 1996). Besides many positive aspects, it is inevitable that some problems accompany an individual's development process. Regarding undergraduate students, who can be seen as occupying precisely this transitional stage between adolescence and adulthood, the following pressures have been found to increase the likelihood of psychological problems: sudden increased control over managing one's time and money, forming new friendships and maintaining

* This study is based on the Master's thesis (An Investigation of Subjective Well-being in University Students in Terms of Some Variables) of the first author under the supervision of the second author presented to Istanbul University Institute of Educational Sciences.

existing social relations, making decisions about the future, adapting to a changing social environment, establishing relationships with the opposite sex, proving personal independence, forming new personal values and undergoing autonomous self-recognition alongside the pressure to achieve academic success (Yeşilyaprak, 1985). Keeping these period-specific developmental issues in mind, the following study aims to investigate the subjective well-being levels of university students. Following Diener (2006), we define subjective well-being as an umbrella term for both positive and negative evaluations by individuals concerning their lives in terms of life satisfaction, engagement, and affect. In the process of our study, the following parameters: attitude towards the future; locus of control and psychological need satisfaction are used when assessing subjective wellbeing.

Beginning with the first parameter, “future time orientation” or “future time perspective” are key concepts when analyzing subjective attitudes toward future (McGrath & Tschan, 2004). Some researchers conceptualize future orientation as a general tendency towards goals (Gjesme 1981, 1983; Zimbardo & Boyd, 1999), while others (Trommsdorff, 1983, Nurmi, 1989; Van Calster, Lens & Nuttin, 1987) conceptualize it as content, duration, or directionality of the subjective experience of the future. Research on attitudes towards the future indicate that future orientation and future time perspective have a positive relationship with academic success (Fong & Kim, 2019; Bembenutty & Karabenick, 2004; Kauffman & Husman, 2004; Barnett et al. 2018; Orosz et al. 2017; Shell & Husman 2001; Zimbardo & Boyd, 1999). Moreover, an orientation towards the future also helps condition less risky health behaviors (Mahon & Yarcheski, 1994) and, in general, is thought to influence a feeling of higher life satisfaction (Gao, 2011). Conversely, hopelessness about one’s future, pessimism (Yazıcı, 2003) and anxiety about the future (Türküm, Kızıldaş, & Sariyer, 2004) are set as commonly occurring and substantial causes of psychological distress among of young people. Thus, future orientation has shown to be directly related to well-being (Zimbardo & Boyd, 1999, Diener et al., 1999; Diehl, Coyle, & Labouvie-Vief, 1996; Srivastava et al., 2003) and a focus on the future is understood to be essential for goal achievement (Carver et al. 1996). Emmons (1986) and Brunstein (1993) showed that having goals and the motivation to achieve that goal are clear predictors of subjective well-being. Fostering a commitment to future goals helps the individual to develop a sense of structure and meaning to their daily life (Diener et al. 1999). Therefore, one predicted outcome of the present study is that future time orientation in terms of

planned and positive attitudes towards the future would contribute positively to the well-being of the Turkish university students.

The second variable of this study is internal locus of control. Locus of control was conceptualized by Rotter (1966) as the belief about the origin of an individuals' control on own actions. Locus of control is categorized in two dimensions: internal, versus external, locus of control. Rotter (1966) defined external locus of control as evaluating consequences of one's own actions within a structure allowing for a belief in luck, chance, fate and the control of powerful others, whereas, internal locus of control signifies the conditioning factor of one's success or failure as the belief in the dominance of one's own actions or own characteristics. Research indicates that individuals with an internal locus of control have lower stress levels (Candangil & Ceyhan, 2006), easily tolerate uncertainty (Tabak & Erkuş, 2008) and show higher levels of sense of responsibility (Golzar, 2006). They also tend to be more innovative, more risk-taking and more able to focus on opportunities (Basım & Şeşen, 2008; Miller, Kets de Vries & Toulouse, 1982). At the same time, they can be self-oriented perfectionists while having higher levels of self-confidence (Uçar & Duy, 2013) and showing higher levels of optimism (McConnell, Bill, Dember, & Grasha, 1993). Conversely, it was reported that individuals with a dominant external locus of control are more commonly associated with having personality disorders (Watson, 1998), paranormal beliefs (Dağ, 1999), anxiety or depression (Benassi, Sweeney, & Dufour, 1988). Broadly, the research carried out into the locus of control shows that a dominant internal locus of control is related to positive outcomes, whereas a dominant external locus of control is related to negative ones. Thus, the second purpose of the study is to examine the predictive role of an internal locus of control on subjective well-being.

Finally, the third variable of the study is psychological need satisfaction. Maslow (1943), Murray (1938), Alderfer (1967) and McClelland (1961) emphasize the existence and importance of psychological needs focusing on different fundamental factors. Psychological need satisfaction is a concept based on self-determination theory. Psychological need satisfaction (autonomy, competence and relatedness) is necessary for survival, growth, and personal integration (Deci & Ryan, 2000), for good health and wellness of individuals (Ryan & Deci, 2000), and is related to positive emotions. Accordingly, under satisfaction is related to experiencing negative emotional states, which may affect psychological and physiological health (Williams et al., 2000). There are important debates on the generalizability of intercultural human needs and

the question as to whether there are universal psychological needs (Deci et.al., 2001) or not. A cultural relativist argument tends to suggest that it is important to satisfy autonomy need in individualistic cultures, whereas, it is important to satisfy relatedness in collectivist cultures (Deci & Ryan, 2008). However, the dominant view tends towards and understanding that the satisfaction of competence, autonomy and relatedness will increase motivation and wealth in all cultures (Deci et.al., 2001; Deci & Ryan, 2008). The last research objective of the present study is thus assessing the predictive role of the satisfaction of basic psychological needs upon subjective well-being.

Accordingly, the purpose of this study is to examine the predictive role of planned and positive attitude towards future, internal locus of control belief and psychological need satisfaction (autonomy, relatedness, competence) on subjective well-being levels of university students. Besides, this main purpose it is aimed to examine if the subjective well-being levels of Turkish under-graduate students differ in terms of socio-economic status and gender.

2. Method

2.1. Participants

The research sample consists of 926 undergraduate students from different faculties across Istanbul University, namely: Literature (n=82); Education (n=231); Science (n=80); Law and Political Science (n=82); Economics (n=51); Theology (n=58); Communication (n=72); Business (n=93); Engineering (n=124); and Medicine (n=53). The research was performed during the 2016-2017 academic year. The data was collected through convenient sampling. The participants' mean age was 21.4 (age range was 18-35) at the time of recruitment. 67.3% of them were women and 32.7% were men. 13.4% of the participants perceive their socioeconomic level to be low to middle, 68.3% to be moderate, and 18.4% perceive it to be above middle to high.

2.2. Measures

To determine the demographic variables a 'Demographic Questionnaire' was used; to determine subjective well-being 'Satisfaction with Life Scale' and 'Positive-Negative Affect Scale' were used; to determine attitudes towards the future, 'Attitude Towards the Future Scale' was used; to determine levels of internal control 'General Internal Control Belief (personal control) Scale' was used; and to determine level of psychological need satisfaction 'Psychological

Need Satisfaction Scale' was used. With the Demographic Questionnaire, participants were asked to fill out a sheet containing basic demographic information including age, gender, faculty and department, and socio-economic status.

The Satisfaction with Life Scale (Diener et al., 1985) and 'Positive-Negative Affect Scale' (Watson, Clark, & Tellegen, 1988) were used to measure the subjective well-being levels of the participants, the scale exhibit, a two-dimensional construct as affective and cognitive aspects. Subjective well-being scores were analyzed by conversion of the scores to standard z scores using the following formula: Subjective Well-Being = Life Satisfaction + Positive affect – Negative Effect

Satisfaction with Life Scale, is a five-item 7-point Likert scale designed to measure cognitive judgements of one's life satisfaction (the judgmental or cognitive dimension of subjective well-being), which was developed by Diener et al., (1985) and adapted into the Turkish language and context by Yetim (1991) and Köker (1991). Studies by Yetim (1991) and Köker (1991) have previously, proved the validity and reliability of the scale when applied to a Turkish sample. The test retest reliability coefficient was found to be .85 (Köker, 1991). Yetim (1991) calculated split half reliability .74, and Cronbach alfa (α) coefficient as .78. The lowest score on the scale is 7 and the highest score is 35. For the present study, we performed an item analysis and checked the reliability coefficients. The alpha (α) coefficient was found as to be .79.

Positive-Negative Affect Scale, developed by Watson, Clark, and Tellegen (1988) to measure positive and negative affect of individuals, the positive-negative affect scale has 10 items for positive and 10 items for negative attitudes: in total 20 items and two factors. It is a 5-point Likert-type scale. Scores that can be obtained from the scale differ between 10 and 50 for both subscales. A Turkish adaptation was performed by Gençöz (2000). The Turkish rendering of the scale factor loadings for negative affect ranges between .46 and .76, and .48 and .74 for positive affect. Cronbach's Alpha is .83 for negative affect and .86 for positive affect; the test-retest reliability of scale was reported as .40 for positive emotion and .54 for negative emotion (Gençöz, 2000). For the present study's sample, the Alpha (α) coefficient is calculated as .75 for positive emotions, and .77 for negative emotions.

Attitude Towards the Future Scale, developed by İmamoğlu and Güler-Edwards (2007). The scale contains 15 items and three sub-factors, namely, positive orientation (which reflects a positive perception about the future

and expectations about having a good job, good family relations and being successful in the future), anxious orientation (which reflects anxious and fearful perception of the future, worries about the uncertainty of the future) and planned orientation (which reflects the motivation to plan for the future). Cronbach's Alpha (α) coefficients were .84 for the general scale, .80 for the first sub-factor, .81 for the second sub-factor, and .79 for the third sub-factor. The test-retest coefficients indicated .78 for the general scale, .70 for positive orientation, .76 anxious orientation and .71 planned orientation. In the present study positive and planned orientation subscales are applied. In the present study's sample, Cronbach's Alpha (α) coefficients of the study are .83 for the positive orientation sub-factor, .66 for the planned orientation, sub-factor.

General Internal Control Belief Scale, was developed by Dağ (2002). It is a five-point Likert Scale and includes 47 items. The internal consistency coefficient Cronbach alfa was .92, the test-retest reliability coefficient was .88. It has five sub-factors, namely, general internal control (personal control), belief in luck, the pointlessness of striving, fatalism and the belief in unjust world. In the present study, a general internal control belief sub-factor was used. The internal control subscale refers to the belief in the power of individuals' personal efforts to change outcomes through hard work and dedication rather than being effects being conditioned by the power of outside forces. The lowest score that should be obtained is 18 and highest score 90. Higher points indicate an orientation towards an external locus of control, lower points indicate orientation towards an internal locus of control. In the present study, the Cronbach Alpha coefficient was found to be .94 for the general internal control belief sub-factor.

Psychological Need Satisfaction Scale, was developed by Deci and Ryan (1991) with a Turkish adaptation being performed by Cihangir-Çankaya and Bacanlı (2003). The scale aims to provide a measure for the satisfaction of psychological needs, one of the basic concepts of self-determination theory. This is a 7-point Likert scale composed of 21 items and 3 factors, autonomy, competence and relatedness. High scores obtained from the scale indicate that psychological need satisfaction is high, whereas low scores indicate that the need satisfaction is low. The test-retest reliability coefficient of the scale is .89; .82 for autonomy; .80 for competence; and .81 for relatedness. For the scale and sub-scales, the internal consistency coefficients were predicated as .71 for autonomy, .60 for competence, .74 for relevance, and as .83 for the total satisfaction needs scale (Cihangir-Çankaya & Bacanlı, 2003). The highest score can be obtained from the scale is 105, the lowest score is 21, for the autonomy

sub-factor, the lowest score is 6, the highest score is 30; for the competence sub-factor, the lowest score is 6, the highest score is 30; finally, for the relatedness sub-factor, the lowest score is 9, the highest score is 45. For the present study, the Cronbach Alpha coefficient was found to be .85 for the total score, .70 for autonomy, .65 for competence, and .77 for the relatedness subscales

2.3. Procedure

The data collection set was administrated to volunteer students upon receipt of the required permissions. Administering the survey took about 30 minutes and the aim of the research and the importance of participation were both explained to the participants by the researchers.

Before analyzing the data, data screening procedures were applied to check the outlier tests, normality, homoscedasticity, linearity, and multicollinearity of the data. After this process, the distribution of data groups was examined using Kolmogorov-Smirnov (K-S) to select the appropriate statistical analyzes to be implemented according to the purposes of the research. From this process, the researchers decided to implement either parametric or non-parametric tests.

Participants scores regarding the Satisfaction with Life, Positive-Negative Affect, Attitudes Towards the Future, General Internal Control Belief, and Psychological Need Satisfaction Scales were examined using the Kolmogorov-Smirnov (K-S) test in order to check for normal distribution. Normal distribution should have values for skewness and kurtosis between -1.5 and +1.5 (Tabachnick & Fidell, 2013). Appropriate analyzes were carried out after checked normal distribution of the data.

3. Results and Discussion

3.1. Results of the Study

Firstly, descriptive analyzes were conducted related to subjective well-being, attitude towards future, general internal control belief, and the psychological need satisfaction. The subjective well-being was analyzed using a conversion standard z score obtained from the Satisfaction with Life Scale, and positive and negative affect scale, using the formula: subjective well-being = Satisfaction with Life Scale + 'Positive Affect – Negative Affect'. Thus, the subjective well-being scores range from -35 to 75. For the present study, the mean score of the subjective well-being of university students were calculated as 32.3 ± 11.89 . As mentioned above, the Satisfaction with Life is a 7-point Likert scale which

measures the cognitive construct of subjective well-being. The lowest score on the scale is 7 and the highest score is 35. For the present study, a life satisfaction score among the student participants was calculated as 21.1 ± 6.12 . Scores that can be obtained from the scale differ between 10 and 50 for both subscales. The mean scores for the present study were calculated as 35.7 ± 5.32 for negative affect and 24.5 ± 5.61 for positive affect.

To determine the participants attitudes towards the future, the 'Attitude Towards the Future Scale' was distributed, a 5-point Likert type scale which does not, however, provide a total score due to the different characteristics of the sub scales. For the positive orientation sub scale, the lowest score was calculated as 5 and the highest score as 25 with the mean score being 19.2 ± 3.74 . For planned orientation, the lowest score was calculated as 3, the highest as 15, and the mean score was 11.4 ± 2.24 .

To determine the general internal control levels of the participants, the General Internal Control Belief (Personal Control) sub-scale of Locus of Control scale was administrated. The scale used, is a 5-point Likert type, with the lowest score that should be obtained being 18 and highest score 90. For the present study, the mean score was calculated as 48.9 ± 9.57 . The higher scores show higher level of external control, and it is important to note that lower scores indicate higher levels of internal control belief.

Lastly, the Psychological Need Satisfaction Scale was used to determine the psychological need satisfaction levels of university students. This is a 7-point Likert scale with three subscales. The highest score obtained from the scale is 105, the lowest score is 21, and the average score is 104.9 ± 16.40 . For the autonomy sub-factor, the lowest score was 6, the highest score was 30, and the mean score was 29.8 ± 6.02 ; for the competence sub-factor, the lowest score was 6, the highest score was 30 and the mean score was 28.2 ± 5.91 ; finally, for the relatedness sub-factor, the lowest score was 9, the highest score was 45, and the mean score was 46.9 ± 8.28 .

To account for any possible gender effects on the subjective well-being levels of the participating students, independent group t test was performed in order to compare the scores of men and women which gleaned no significant results ($p > .05$). An analysis of variance (ANOVA) on these scores yielded significant variation among socio-economic status ($F_{923} = 24.118$; $p < .01$). A post hoc Tukey test showed that subjective well-being levels differ significantly between the three socio-economic groups, 'Group 1 (low and below medium)' and 'Group 2 (medium)'; 'Group 1 (low and below medium)' and 'Group 3

(above medium and high)' and 'Group 2 (medium)'; and 'Group 3 (above medium and high)'. Group mean scores are calculated as "low and below medium" = 26.16; "medium" = 32.68 and "above medium and high" = 35.49.

Before conducting the regression analyses to examine the relationship between attitudes towards the future, internal control belief, psychological need satisfaction and subjective well-being, Pearson's correlation coefficients were used, and the results are summarized in Table 1.

Table 1: Correlations between Subjective Well-Being and Other Variables

Variables	Subjective well-being and sub-factors			
	Subjective Well-Being	Satisfaction with Life	Positive Affect	Negative Affect
Attitudes towards the future				
Positive orientation	.49***	.30***	.41***	-.32***
Attitudes towards the future				
Planned orientation	.43***	.23***	.47***	-.22***
General internal control Beliefs	-.22***	-.67*	-.28***	.12***
Psychological need satisfaction (total score)	.61***	.37**	.44***	-.47***
Psychological need satisfaction	.50***	.33***	.30***	-.43***
/Autonomy				
Psychological need satisfaction	.58***	.35***	.48***	-.38***
/Competence				
Psychological need satisfaction	.43***	.26***	.31***	-.34***
/Relatedness				

* $p < .05$, ** $p < .01$, *** $p < .001$

Values are evaluated according to the grading system proposed by Büyüköztürk (2002): Correlation coefficients between 0-.29 are considered to be low; moderate correlation between .30-.69; and high correlation between .70-1. Findings reveal a negative low correlation between subjective well-being and internal locus of control, and moderate correlations between subjective well-being and positive orientation, planned orientation, psychological need satisfaction (total scores), autonomy, competence and relatedness. Results of the study show a low significant correlation between satisfaction with life scale and planned orientation, relatedness; and moderate correlations between satisfaction with

life scale and positive orientation, general internal control belief, psychological need satisfaction (total scores), autonomy and competence. Findings show a low significant correlation between positive affect and internal locus of control, and moderate correlations between positive effect and positive orientation, planned orientation, psychological need satisfaction (total scores), autonomy, competence and relatedness. Findings reveal a low significant correlation between negative affect and internal locus of control, planned orientation and moderate correlations between negative affect and positive orientation, psychological need satisfaction (total scores), autonomy, competence and relatedness.

A stepwise regression was calculated to predict the effects of attitudes towards future, locus of control and psychological need satisfaction on subjective well-being Findings are presented in Table 2.

Table 2. Stepwise Regression Analyses Showing Amount of Variance in Subjective Well-being.

Variable	Step 1			Step 2			Step 3			Step 4			Step 5		
	B	SE B	b	B	SE B	b	B	SE B	b	B	SE B	b	B	SE B	b
Constant	-.336	1.56		-11.53	1.80		-17.37	1.88		-21.02	1.97		-24.34	2.15	
Competence	1.16	.05	.575	.90	.06	.448	.68	.06	.340	.23	.06	.308	.55	.06	.271
Number of divorces															
Positive orientation				.96	.09	.301	.85	.09	.269	.64	.09	.202	.62	.09	.194
Autonomy							.47	.06	.238	.48	.06	.241	.42	.06	.210
Planned orientation										.82	.15	.154	.82	.15	.153
Relatedness													.17	.04	.115
R ²		.33			.41			.45			.46			.47	
F for change in R ²		456.80**			314.40**			247.30**			198.26**			164.48**	

*p<.05. **p<.01.

Subjective well-being was investigated by stepwise regression method using planned and positive orientation to future, internal locus of control and satisfaction of basic psychological needs as independent variables. All the steps and results of the analyses has been shown on table 2. As a result of stepwise regression, the independent variables that were predicted to have a significant impact on subjective well-being total score, were found to be competence, positive orientation, autonomy, planned orientation and relatedness. With these determined independent variables, the explanatory coefficient of the model was found to be $R^2 = 0.47$, and it was found that the model was statistically significant ($F = 164.48$; $p < 0.001$) [Table 2]. It was found that these variables together explain 47% of the variance in subjective well-being.

3.2. Discussion

The present study examines whether the subjective well-being levels of university students differ according to gender and socio-economic levels. Results show that the subjective well-being levels of the university students' does not differ according to their gender. Previous research has indicated contrary findings. While a number of previous studies, including Larson (1978), Diener (1984), Tuzgöl-Dost (2006), support our findings, studies by Kelley and Stack (2000), Topuz (2013), Eryilmaz and Ercan (2011), Cenkseven and Akbaş (2007), and Gündoğdu and Yavuzer (2012) produced contradictory results. Here, women were found to experience both positive and negative emotions more intensely than men and was reported that while women frequently have higher subjective wellbeing levels than men, they also experience more negative emotions. According to Nolen-Hoeksema and Rusting (1999), this discrepancy can be attributed to different gender roles imposed upon men and women by the wider society.

Secondly, the present research has examined whether discrepancies in subjective well-being scores can be attributed to differing socio-economic levels. In the case of this study, the results show that an increase in the socio-economic levels of university students is positively correlated with subjective well-being levels. Other research, however, indicates different findings. While Tuzgöl-Dost (2006), Cenkseven and Akbaş (2007) all indicate significant differences in subjective well-being scores based on socio-economic level, these results are not supported by Topuz (2013). Nevertheless, elsewhere income level is found to demonstrate relatively stronger associations with well-being than age and gender (Staudinger, Fleeson and Baltes, 1999). We can therefore conclude

that a multifaceted relationship between subjective well-being and socio-economic level exists. Diener, Harter and Arora (2010) highlight that the effect of individual income is less important than societal income on life satisfaction, which suggests that the general economic circumstances of the relevant country is much more important in determining well-being than an individuals' personal or familial income. In prosperous countries people report greater life satisfaction than people living in poorer countries, perhaps attributable to the difference in fulfillment in terms of basic needs between wealthy and poor nations (Diener et al., 1999). An important related point that ought not to be overlooked is that wealthy countries often differ politically from poorer countries in terms of being more democratic and egalitarian (Diener et al., 1999), an interesting factor which is not covered in the findings of the present study.

The present study also examined the relationship between attitude towards the future and subjective wellbeing of university student. A clear relationship exists between positive and planned orientation sub-factors of attitude toward the future and subjective well-being. A small number of studies have focused on positive orientation towards the future in the literature, therefore we will address the findings of optimism research interchanged with positive orientation towards the future while discussing the results. Optimism is defined as positive outcome expectancies (Chang, Maydeu-Olivares and D'Zurilla, 1997). According to the theory of optimism by Scheier and Carver (1985), it is stated that one's thoughts about one's own future profoundly influence one's life and, correspondingly, subjective well-being. It was noted by Kaya, Bodur, and Yalnız (2014) that there is a significant but weak positive correlation between students' attitudes toward the future and their subjective well-being levels. The study conducted by Eryılmaz and Atak (2011), determined a positive relationship at high level between subjective well-being and a tendency towards optimism. A similar study carried out by Öztürk (2013) found a direct relationship between optimism and life satisfaction levels. The present findings are also supported by international studies. Compton (2000) found a significant relationship between optimism and subjective well-being, while Chang, Maydeu-Olivares and D'Zurilla (1997) determined a relation between optimism and life satisfaction. The study of Ben-Zur (2003) argued that optimism is related both to positive and negative emotions. The present study concurs with the generic findings in that it indicates a significant positive correlation between subjective well-being and planned orientation, and thus reinforces previous researches which indicate the positive effects of planning for the future on life satisfaction. Our

study supports the idea that future-oriented planning is related with positive health practices (Mahon, Yarcheski, and Yarcheski, 1997) and additionally, that future oriented planning increases the perception of self-control which in turn improves life satisfaction (Prenda and Lachman, 2001), findings which were also supported by Kaya, Bodur, and Nazik (2014). The study conducted by Holaway, Heimberg and Coles (2006), stressed that an inability to tolerate uncertainty is related to both obsessive compulsive disorder and generalized anxiety disorder. In a study conducted by Sariçam (2015) states that there is negative correlation between happiness and prospective anxiety, and inhibitory anxiety sub scales of intolerance to uncertainty.

As outlined, the present study also examined the effect of positive and planned orientation on subjective wellbeing. The regression analyses performed, show that the positive and planned orientation predicts subjective wellbeing, in line with previous research. The study conducted by Eryilmaz (2011), revealed that the expectation of experiencing a positive future ahead is significant predictor of subjective well-being in adolescents. Likewise, the study conducted by Dursun (2012), indicated that optimism towards the future influences both life satisfaction and positive affect. Duy and Yıldız (2017) also found a positive correlation between optimism and subjective wellbeing while, Daukantaitė and Zukauskienė (2012) mention the influence of optimism on subjective well-being and a similar result is found by Matthews and Cook (2009). In further piece of research conducted by Azizli and his colleagues (2015) reports that having plans for future has a measurable effect on life satisfaction in terms of arousing a sense of control and preparation. Thus, the findings of the present study correlate with those found in other studies that examine effects of planned orientation on subjective well-being.

The other sub-scale we examined the predictive role on subjective well-being is planned orientation. Planning for future is considered to be an influential factor in terms of displaying goal orientated behaviors. Thus, it is predicted that such individuals will have the sense of experiencing raised levels of self-control over their own life and an increased sense that they are able to manage their personal affairs. It is expected that such individuals will be able to exert increased self-control over both desirable or undesirable conditions. Hence, it is thought that the ability to plan for the future has both cognitive and emotional effects on individuals. Thus, we can state that the planning process is effective in predicting future probabilities, diminishing uncertainties, creating motivation for behaviors and enhancing well-being (Smith, 1996).

General control belief is the second variable which is examined in terms of its relationship with subjective wellbeing in this study. The positive correlation between general internal control beliefs and subjective well-being levels of the student participants is evidenced, with this positive correlation recognized as conceptual; to clarify, the general internal control belief subscale has a reverse scoring system. For this reason, it is important to keep in mind that a statistically negative correlation between subjective well-being level and internal locus of control belief means conceptually a positive correlation between subjective well-being and internal locus of control belief. Previous studies are consistent with this finding: Compton (2000) finds a positive relationship between subjective well-being and internal locus of control; similarly, Klonowicz (2001), finds a relationship between locus of control and positive or negative affect, the two components of subjective well-being. A subsequent study conducted by Pu, Hou, and Ma (2017) shows similar findings, with researchers detecting a relationship between internal locus of control and positive affect, thus enhancing subjective well-being, and negative affect, thus diminishing subjective well-being. Myers and Diener (1995) likewise found that internal control belief is one of the four essential characteristics for happiness. In the stepwise regression analyses. To examine the effect of general internal control belief on subjective well-being, internal locus of control was lastly entered into the model as the correlation coefficient was low, as a result of analysis locus of control was removed from the model. Although previous research emphasizes locus of control as a significant predictor of subjective well-being, the findings of the present study have not supported by.

In the present study, the third variable examined as associated to subjective well-being is psychological need satisfaction. The findings can lead us to propose a direct relationship between psychological need satisfaction and the subjective well-being levels of university students. This result is coherent with previous research. For instance, Sheldon and Elliot (1999) reveal that all three sub-scales of need-satisfaction have strong and significant correlations with subjective well-being. Véronneau, Koestner and Abela (2005) reveal that competence is associated with depressive symptoms, and competence and autonomy are associated with negative affect. Similarly, the findings of the research conducted by Reis and colleagues (2000) emphasize that all three needs were significantly associated with well-being. The study conducted by Doğan and Eryılmaz (2012), revealed that subjective well-being and its components, life satisfaction and positive affect correlated positively, and that negative affect

correlated negatively with psychological need satisfaction. Likewise, the study conducted by Cihangir-Çankaya (2009), revealed that an increase in the level of well-being is parallel to the increase in the level of need satisfaction while the level of wellbeing decreases in parallel to a decrease in need satisfaction. Other research has indicated the effect of autonomy (Özdemir, 2016), academic, social, and emotional self-efficacy (Telef and Ergün, 2013; Bergman and Scott, 2001, p.190) on subjective well-being; relatedness to family and friends were significantly associated with both subjective well-being and life satisfaction (Kasser and Ryan, 1999); and relationship satisfaction significantly predicted psychological well-being (Adamczyk, 2017).

The regression analysis shows that psychological need satisfaction contributes to overall subjective well-being, a finding in line with previous research that reiterates its importance. Research findings by LaGuardia et al. (2000) reveal that psychological need satisfaction has substantial shared variance when predicting well-being and that each variable also makes a unique contribution to well-being. In a study conducted by Sheldon, Ryan and Reis (1996), it was identified that autonomy and competence have a significant effect on subjective well-being. Pinquart and Sörensen (2000) find a high correlation between social network and subjective well-being, and between happiness and competence in older populations. Similar results are found in studies which focus on Turkish samples. Studies conducted by Cihangir-Çankaya (2005) and İlhan (2009) revealed that need satisfaction has a positive effect on well-being. Indeed, a further study carried out by Cihangir-Çankaya (2009), indicated that all sub-factors of psychological need satisfaction are significant predictors of well-being. According to self-determination theory, psychological need satisfaction is a universal need and an essential condition for subjective well-being (Ryan and Deci, 2000; Deci and Ryan, 2000). It was stated that if the subfactors of autonomy, competence and relatedness cannot be sufficiently satisfied, many contingencies that negatively affect subjective well-being can occur, and that, consequently, we can see a direct relationship between subjective well-being and general psychological needs satisfaction.

4. Conclusion and Recommendations

The purpose of this study was to investigate how, attitudes toward the future; locus of control, and psychological need satisfaction, were used to predict subjective well-being. The research sample consists of 926 undergraduate students from different faculties of Istanbul University, namely Literature,

Education, Science, Law, Economics, Theology, Communication, Business, Engineering, Political Sciences and Medicine. The results indicate a significant positive correlation between subjective well-being and a positive and planned orientation towards the future. Moving to locus of control, the results indicated that the higher the level of general internal control belief, the higher the level of subjective well-being. In terms of psychological need satisfaction, a significant positive correlation was found to exist between the satisfaction of psychological needs and subjective well-being, and sub-factors, autonomy, competence and relatedness. The results of the stepwise regression analyze show that, all the independent variables that remained in the model together accounted for 47% of the variance in subjective well-being; general internal control belief was removed from the model as a result of analysis. Combined, these factors are able to predict subjective well-being with significant accuracy.

The present study is limited to undergraduate students in Istanbul University and it would be important to test the scope of our findings by sampling with different population groups (different age groups, different socio-economic groups and different settlements). Moreover, future studies could effectively contribute to the existing literature by examining the mediator and moderator roles on subjective well-being with the variables analyzed here. Another avenue of research could also focus on identifying the source of anxious attitudes towards future, be they individual or environmental, and such a study would therefore need different measures. The governing factors analyzed in this study and specifically their relationship to academic achievement, individual motivation and cognitive problem-solving skills could be another rich avenue of research in this field. These variables can be assessed by other disciplines and with other variables.

Acknowledgements or Notes

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CHAPTER IV

CURRENT STATUS OF INDIVIDUAL COUNSELING PRACTICUM IN TURKEY: COUNSELOR EDUCATORS' EXPERIENCES WITH THE PROCESS AND REQUIREMENTS*

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1. Introduction

Developing one's professional identity as an effective counselor begins in the counselor training program. As the main mission of the counselor training program can be training effective counselors, supervised practicum is the most critical element of the training, forming the basis of professional practices and standards with its scope and details in the program. Therefore, how counselor trainees will gain professional competencies that are necessary to effectively help their clients during their counseling practicum must

*. Aladağ, M., & Kemer, G. (2016). *The examination of individual counseling practicum and its supervision in counselor education* [in Turkish]. İzmir, Turkey: Ege University, Directorate of Scientific Research Projects. This study was produced from the research project carried out with the support of 12-EĞF-003 Ege University Scientific Research Project.

be designed well. Similarly, how the supervision process for those professional gains and experiences must also be designed and carried out intentionally.

The intent of practicum is to provide counselor trainees with opportunities to start integrating their professional knowledge as they develop counseling skills and competencies as well as their professional identity through direct client contacts under supervision. When we look at the practicum process and requirements presented by accreditation bodies from other countries, we observe different standards. For example, according to Psychotherapy and Counselling Federation of Australia [PACFA] (2018), a minimum of 40 hours of face-to-face counselling or psychotherapy practice (client contact) with 10 hours of supervision (related to client contact) within training must be completed and assessed as successful by the training programs. Clients may be individuals, couples, families, or groups in the context of counseling or psychotherapy provision. The clients also must have no pre-existing, personal or professional relationship with the counselor trainee to avoid dual roles. Similarly, according to Council for Accreditation of Counseling and Related Educational Programs in United States [CACREP] (2016), practicum students must complete at least 40 clock hours of direct service with actual clients to develop counseling skills. The counseling laboratory or clinic is also described, but not mandated in these standards as counseling instruction environment must be conducive to modeling, demonstration, and other training purposes. These laboratories or environments may be located on- or off-campus, equipped with certain technological tools and other observational capabilities as well as procedures for maintaining privacy and confidentiality.

In Turkey, counselor educators put significant efforts into determining counselor competencies, establishing training standards including practicum and internship, and also developing accreditation for training programs officially titled as Guidance and Counseling Programs (GCP)s. In GCPs, instead of distinctive definition of practicum, practicum in individual, group, career, and school counseling are the courses that necessitate supervised practice at the undergraduate level. However, it is unclear whether practicum courses are developmentally organized or even supervised in GCPs. *Individual Counseling Practice (ICP)* is a critical course scheduled in the last year of GCPs, corresponding practicum element of CACREP and PACFA standards. According to course definition, ICP involves carrying out individual counseling under supervision using basic counseling skills and techniques. Unfortunately, being a general one, this definition does not contain any descriptive information

or procedures about client characteristics, necessary contact hours, as well as practicum environment and procedures for GCPs.

In recent years, although quite limited, our knowledge about practicum process and requirements of ICP in GCPs has started to increase with research studies. For example, Meydan (2015) found that out of 809, 758 counselor trainees from 19 different GCPs reported conducting individual counseling practice. Pamukçu (2011) also reported that across a sample of 469 counselor trainees from 11 different GCPs, the average number of seen clients were two, while the number of counseling sessions were eight. Although the rate of practicing ICP students was high, it is still concerning that there were trainees stated no practice. However, in Atik's recent study (2017) with 776 counselor trainees from 20 different GCPs, the results showed improvements toward systematic practicum procedures in GCPs. According these results, across 776 trainees, the range of seen clients was one to four and above, including one client ($n=345$, 44.5%) and two clients ($n=185$, 23.8%) with the highest frequencies. The number of counseling sessions, on the other hand, ranged between one-five to 21 and above sessions including one-five sessions ($n=307$, 39.7%) and six-10 sessions ($n=274$, 35.2) with the highest frequencies. In the light of research studies solely focused on ICP from individual GCPs, we also know that counselor trainees see real clients, and the average number of clients that trainees saw was one or two while average number of counseling sessions ranged between 6-8 to 25 sessions in GPCs (e.g. Aladağ & Bektaş, 2009; Ülker-Tümlü, Balkaya-Çetin & Kurtyılmaz, 2015; Zeren & Yılmaz, 2011).

While being important, the findings of these studies mainly presented counselor trainees' reports. Moreover, these findings highlighted the inconsistencies across practicum requirements utilized in different GCPs. As the effect of such variations between the training programs may have serious ethical implications, it can also be helpful to further understand the reasons and rationale for these different training practices. Therefore, a more comprehensive understanding on the critical dimensions of practicum process of ICP in GCPs based on counselor educators' experiences could offer rich and detailed information on the current status of practicum process to further inform the development of standards for ICP in Turkey. Thus, in this study, we aimed at accessing a national sample and examining the experiences, perspectives, and reflections of counselor educators on the process and requirements of ICP practicum. Since the ability of counselors trained in undergraduate programs to form a common counselor identity and provide effective counseling services is

directly related to the quality of the training and involved practicum process, we believe this study will contribute to the processes for development of a professional counselor identity in the counseling field in Turkey.

2. Method

2.1. Research Design

In this research, a sequential explanatory mixed methods design was used to examine the process and requirements of ICP in a comprehensive and detailed way (Creswell, 2003). Within the scope of this design, in the first stage, a survey study was conducted to define the nature of ICP in its own characteristics and conditions. In the second stage, a case study with interviews was performed to focus and analyze the counselor trainees' counseling practices and its processes in depth (Yin, 2003). In this way, we aimed at holistically describing the current situation of ICP practicum through both quantitative and qualitative data and, finally, offering recommendations for the ICP standards to be established in counselor education.

2.2. Participants

Out of 124 counselor education faculty members who taught ICP in different universities (33 public and six private), 60 agreed to complete the initial survey. Out of 60, 37 of the participants were female and 23 were male with an age range from 26 to 55 and above. Seven of the participants were full professors, while 11 were associate and 32 were assistant professors, eight were lecturers and two were research faculty all holding doctoral degrees. The number of years teaching ICP course across the participants were 1-3 years ($n = 27$), 4-7 years ($n = 19$), 8-9 years ($n = 7$), and 10 years and more ($n = 7$). Out of 60 participants, 30 participants voluntarily wanted to participate in to the second phase of the study, semi-structured interviews. From the 30, a total of 18 participants were selected by using maximum variation sampling method based on three variables: (a) the geographic location of participants' affiliated universities in Turkey, (b) academic title of the faculty member, and (c) the years of experience with teaching ICP course. The participants in this phase were 13 females and five males, affiliated with 16 public and 2 private universities from all seven regions of Turkey; three full professors, six associate professors, seven assistant professors, one lecturer, and one research assistant faculty, with two to 10 and more years of experience teaching ICP.

2.3. Data Collection Tools

In addition to an *Informed Consent Form*, a *Demographic Information Form* was used to obtain information on the demographic characteristics, professional education and experiences of the faculty members/counselor educators who taught ICP course. In the first stage of the study, a *Survey Questionnaire* including a total of 15 questions about different aspects of ICP, such as number of clients, number of sessions, identification of clients, and location of sessions, was created. Then, a *Semi-Structured Interview Form* was developed based on the relevant literature, the obtained survey data, and experiences of the researchers in counseling practicum and supervision. This form included 10 open-ended questions, such as “What are the general characteristics of the clients? How do you define these characteristics? What are the reasons for counseling with a real or peer client?”, “To what extent do you find the practicum process of ICP effective? Why? What aspects do you find most effective and what about the ineffective ones?”

2.4. Data Collection Procedures

In the first stage, the link to the survey questionnaire along with the informed consent and demographic information form was sent to the e-mail addresses of 124 counselor educators teaching the ICP course in GCP undergraduate programs in Turkey. Participants were asked to answer the questions reflecting their own experiences with the confidence that the data was going to be analyzed in an aggregated manner and university or programs would not be compared. For the second phase, via contacting by phone, interviews with 18 counselor educators were scheduled. First author conducted the interviews at each participant’s university office, traveling to different regions of Turkey. Each interview lasted between one and a half to two hours.

2.5. Data Analyses

The analysis of the quantitative data was done descriptively with frequency, percentage, range, and mean values. For the analysis of qualitative data, consensual qualitative research (CQR) method (Hill et al., 2005) was used in a research team of two associate professors, one doctoral and one master’s student of counseling. To obtain findings through a systematic and reliable manner, the NVivo program was used in the analysis process. CQR was completed through following five phases; a) coding transcriptions into categories, b) forming a

draft structure for the possible main/sub themes of the categories, c) coding of the data to the main/sub-themes that were coded to the categories by using the NVivo program, d) coding each category to the specified main/sub themes, and e) determining the frequency of participants representing the ideas in each theme as “*general, typical, variable, or rare*” per the guidelines of CQR. *To ensure trustworthiness for both data collection and analyses*, several strategies were used including researcher triangulation, purposeful sampling, data triangulation, checking interview transcriptions, consultation with external auditors, and receiving expert opinions.

3. Results

Results obtained from the two stages of the study offered details on the process and requirements of ICP in undergraduate GCPs in Turkey. In reporting the results, the main/sub-categories and the main/sub-themes obtained from the qualitative data were taken as a basis, and the quantitative results were presented by integrating them with the relevant categories and themes to describe ICP holistically. Therefore, in the following sections, the results were presented in two general areas: (1) the current status of practicum process and requirements, (2) reflections on the current status with strengths and challenges. See Figure 1 for the full list of main and sub-categories.

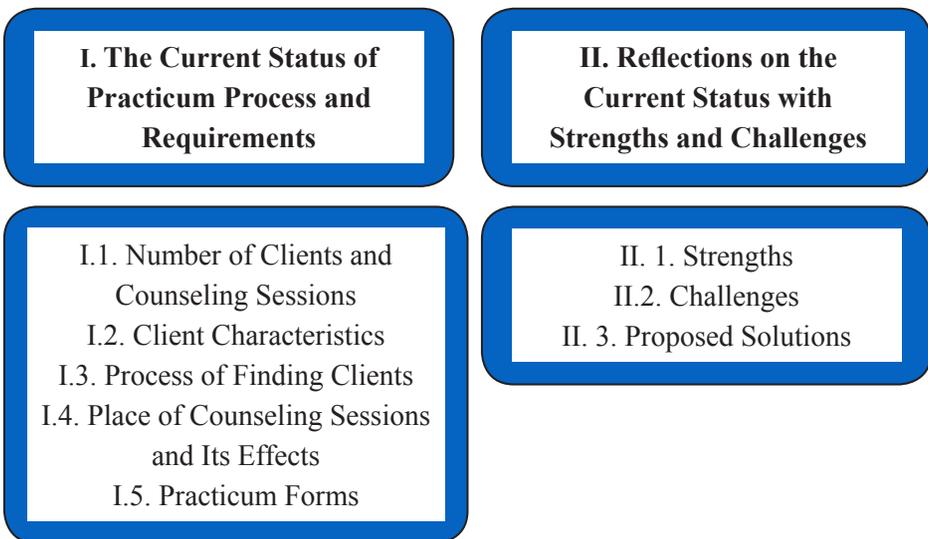


Figure 1. List of Main and Sub-Categories

3.1. *Current Status of Practicum Process and Requirements*

This main category aimed to present an understanding of how the “practicum process” of the ICP course was carried out within the scope of undergraduate GCPs. Accordingly, this category was described under five sub-categories – “number of clients and counseling sessions,” “client characteristics,” “process of finding client,” “place of counseling sessions and its effects,” and “practicum forms”.

3.1.1. *Number of Clients and Counseling Sessions*

According to the results of the survey study, all participants (100%; $n=60$) stated that the counselor trainees performed individual counseling as a requirement of ICP. Regarding *the number of clients* expected to be provided counseling by counselor trainees, some participants stated that (25%; $n=15$) at least one client, while half of the participants (53%; $n=31$) stated that at least two clients. In addition, some of the participants’ statements varied between three (8%; $n=5$) and four to 10 clients (14%; $n=8$). As for *the number of counseling sessions* that the counselor trainees were expected to complete with their clients, the majority of the participants stated seven-10 sessions (42%; $n=25$) and more than 10 sessions (35%; $n=21$), while some of the participants stated as one to three sessions (10%; $n=6$) or four to six sessions (13%; $n=8$). These numbers are presented in Table 1.

Table 1. Number of Clients and Counseling Sessions Required to be followed during the Practicum Process

Number of Client	Quantitative Results		Number of Session	Quantitative Results	
	n	%		n	%
1	15	25	1-3	6	10
2	31	53	4-6	8	13
3	5	8	7-10	25	42
4 and above	8	14	10 and above	21	35

3.1.2. *Client Characteristics*

Reviewing both quantitative and qualitative findings collectively, the majority of the participants stated that the counselor trainees conducted their individual counseling with “*real clients*” (typical), while some participants stated that they

saw both “real clients” and “*peer clients*” (variant), while a few participants stated that solely worked with “peer clients” (rare). These characteristics are presented in Table 2.

Table 2. Client Characteristics

Client Characteristics	Qualitative Results	Quantitative Results	
	Classification	n	%
Real Client	Typical	40	%67
Real and Peer Client	Variant	16	%27
Peer Client	Rare	4	%6

Based on their perspectives, participants reported main client characteristics represented through two themes: “preferred characteristics and reasons” and “undesired characteristics and reasons” as also presented in Table 3

Preferred Characteristics and Reasons

This theme was described under two classifications: “*real client*” and “*peer client*”.

Real Client: Most of the participants stated that they preferred counselor trainees to find “*university students*” as their clients (typical). The main reported reasons for this profile were; a) university students being easily accessible, b) trainees easily developing therapeutic relationship and understanding for the client’s problems due to being close in developmental stages, c) providing the supervisors with the opportunity to follow trainees closely, d) university students being more open to receive counseling, and e) university students being the forced option due to ethical and legal difficulties, such as permissions from parents and school principals.

Similarly, many participants stated that they preferred counselor trainees to find “*high school/middle school student*” as their clients (typical). The reasons were a) being a familiar age group due to developmentally closeness or counselor trainees having recently gone through adolescence, b) being easily accessible at the schools with the help of school counselors, where trainees go to practicum and field practice for different courses, and c) preparing trainees for school counseling, which many of them will be practicing after graduation.

On the other hand, some participants stated that they preferred counselor trainees to find clients with “*different age, education, profession, problem areas (e.g., adult, elderly/tradesman, housewife, soldier/family, marriage, child-rearing, etc.)*” (variant). The reasons were a) gaining experience by working with different client groups, b) increasing counseling competence, c) observing the needs of different client groups in counseling, and d) creating diversity in the client options due to the difficulties of finding clients. “*Different gender*” (variant) was also among the preferred client characteristics by some participants. The main reason this preference was for the counselor trainees to gain experience. Another client characteristic stated by some participants was “*having developmental problems*” (variant). The most basic reason stated for this preference was, assuming that the developmental problems could be resolved a lot easier, to increase counselor trainees’ self-efficacy on helping clients as they practice for the first time. However, a few participants also stated that they preferred “*counseling students*” (rare) as clients so that they could be provided with an opportunity to be in the client seat. In addition, one participant stated that they accepted “*the clients who have developmental or traumatic problems at different levels*” (rare).

We want them to provide counseling with at least one male and one female university student client.... Even though they are few in number, clients from outside the university can also come for counseling (P10).

Peer Client: One participant stated that she preferred counselor trainees conduct their individual counseling with “only peer clients”. She explained the main reasons for this as a) finding and working with the real clients being ethically risky, and b) counselor trainees not being ready to see real clients, yet. On the other hand, a few participants stated that they preferred them to see “first a peer and then a real client,” explaining this as a preparation opportunity before seeing a real client (rare).

Table 3. Preferred and Undesired Characteristics of Clients

Preferred Characteristics		Qualitative Results Classification
<i>Real Client</i>	University students	Typical
	High/middle school students	Typical
	Different age, education, profession, problem areas	Variante
	Different gender	Variante
	Having developmental problems	Variante
	Counseling students	Rare
	Having developmental or traumatic problems at different levels	Rare
<i>Peer Client</i>		Rare
Undesired Characteristics		
	Having severe-chronic problems	Variante
	Being acquainted before	Variante
	Children and/or adolescents	Variante
	Having pathological problems	Rare
	Some demographic characteristics	Rare

Undesired Characteristics and Reasons

Some of the participants stated that they did not prefer counselor trainees to find clients with “*severe-chronic problems*” (variant), because of their inexperience and not to harm their self-efficacy. Another group of participants stated that they did not prefer counselor trainees to “*be acquainted with their clients before*” (variant). Again, some of the participants stated that they did not prefer the clients to be “*children and/or adolescents, especially in the pre-adolescent period*” (variant) due to following reasons: a) difficulty in conducting long-term sessions because of the variability of problems experienced during adolescence, b) working with children and adolescents requiring more specific skills, and c) difficulties in obtaining ethical permission from the families and schools.

Or when we realize that there is a pathological problem, we do not want them to continue counseling. But the strict rule should not be a psychiatric history (P7).

In addition, due to professional limitations of counselor trainees, several participants stated that they did not prefer clients who received long-term psychiatric help with “*pathological problems*” (rare). On the other hand, a few participants stated that they did not prefer clients with “*certain demographic characteristics (e.g., age, education, field/educational background)*” (rare). These included adult and elderly clients, uneducated clients, university student clients who mostly bring emotional relationship problems to counseling and do not allow counselor trainees to experience different issues, such as study skills, test anxiety, and family relationships.

3.1.3. *Process of Finding Clients*

Based on participant interviews, this sub-category was grouped under three themes: “information meeting about how to find client,” “method to find the client” and “supervisor approval”.

Information Meeting about How to find Client

A few of the participants stated that they held an information meeting with counselor trainees to inform them about “client characteristics” and “how to find their clients”.

Method to find the Client

When both the quantitative and qualitative findings were reviewed together, most of the participants stated that the counselor trainees found their real clients “*through announcements - with their own efforts*” (96%; $n = 54$; typical). They stated that printed advertisements/posters and social environment and/or social media were used for the announcements. However, a few participants also stated that they found clients for their counselor trainees “*through school counseling services* (2%; $n = 1$; rare), *university counseling centers* (13%; $n = 7$; rare), and *counseling unit of their counseling program* (21%; $n = 11$; rare)”. In addition, one participant stated that they offered “*getting individual counseling as an option to the pre-service teacher trainees in the faculty of education, instead of an assignment of their guidance course* (2%; $n = 1$; rare)”. On the other hand, one participant reported that the counselor trainees identified their “*peer clients either by matching via drawing or by choice* (rare)”.

...how they find their clients, they post advertisements on the university and faculty web pages, they share the advertisements on the social networks

they use, they post posters in various parts of the school, such as Facebook, Twitter, etc. (P4).

Supervisor Approval

Some participants stated that after counselor trainees identify their clients and have a short intake-interview, they come back and inform their instructor to get approval.

3.1.4. The Place of Counseling Sessions and Its Effect

According to the findings of the survey study, slightly more than half of the participants (60%; $n = 36$) stated that the GCP had a “*Counseling Unit/Clinic*” with a) mirrored rooms (50%; $n = 18$), b) observation rooms (50%; $n = 18$), c) closed-circuit monitoring system (36%; $n = 13$), d) individual counseling rooms (94%; $n = 34$), e) group counseling rooms (89%; $n = 32$), f) seminar rooms and/or counselor/psychologist rooms (6%; $n = 2$). In addition, almost all these participants (60%; $n = 36$) stated that they used this facility throughout the ICP course (94%; $n = 33$) for the following purposes: a) trainees’ counseling sessions (100%; $n = 33$), b) supervision (64%; $n = 21$), and c) monitoring trainees’ sessions (42%; $n = 14$).

When both quantitative and qualitative findings were reviewed together, participants also stated that counselor trainees conducted their sessions in a variety of places, such as home or the dormitory room of counselor trainees or clients, classrooms, the institution where the client is reached, and the office/room of the faculty member/supervisor, in addition to the counseling unit of the program. The findings are presented in Table 4.

Table 4. The Place of Counseling Sessions

The Place of Counseling Sessions	Qualitative Results	Quantitative Results	
		n	%
	Classification		
Counseling unit of program	General	40	67
Home or the dormitory of counselor trainees or clients	Variant	21	35
Faculty classrooms	Rare	17	28
The institution where the client is reached	Rare	4	7
The office/room of the faculty member/supervisor	Rare	1	2

Almost all interviewed participants also emphasized the benefits of conducting sessions in a counseling unit/clinic for the counselor trainees: a) preparing a suitable environment for counseling (e.g., confidentiality, noise, armchairs), b) facilitating counselor trainees' development of professional attitudes and behaviors, c) increasing the quality of supervision (e.g., technical equipment, mirrored room).

And we also want them to have that counseling session in the unit/clinic as much as possible, by challenging the conditions, so that they learn about professionalism. (P13).

On the other hand, some of the participants presented different places for the trainees to conduct sessions also highlighted that the existing equipment in their unit/clinic were insufficient and those practices also involved certain considerations and difficulties: a) not always being a suitable environment for counseling, b) obstructing the development of professional attitudes and behaviors of counselor trainees, c) creating role conflict with clients, and d) causing challenges for the supervision sessions. However, a few participants also stated that they did not see any harm in holding sessions in those environments if appropriate conditions were created.

3.1.5. *Practicum Forms*

The majority of the participants stated that they expected counselor trainees to use the *Intake-Interview Form* (83%; $n=43$; typical) and the *Informed Consent Form* (71%; $n=37$; typical) for individual counseling practicum.

3.2. *Reflections on the Current Practicum Process with Strengths and Challenges*

The second category represented participants' reflections on the current status of practicum process. This category involved three main themes as "strengths", "challenges", and "proposed solutions" as presented in Table 5.

Table 5. Reflections on the Current Practicum Process with Strengths and Challenges

	Qualitative Results Classification
Strengths	
▪ Having a counseling unit/clinic belonging program	Variant
▪ Having practicum regulations and its benefits	Variant
Challenges	
▪ Difficulties related with the place of counseling sessions	Typical
▪ Difficulties related with finding clients and withdrawal	Typical
▪ Not having practicum regulations or inadequate regulations	Variant
▪ Difficulties related with the personal, ethical and professional readiness of counselor trainees	Rare
Proposed Solutions	
▪ Establishing standards and specific suggestions for this	Typical
▪ Improving the physical infrastructure of the counseling units/clinics	Typical

3.2.1. Strengths

Some of the participants underlined two main strengths of their practicum process: a) having a counseling unit/clinic in their program with the necessary infrastructure (e.g. individual counseling rooms, technological infrastructures, cameras, mirrored rooms) (variant), b) having common practicum procedures and requirements (e.g. number of client and counseling sessions) (variant) for enhancing the professional attitudes and behaviors of counselor trainees and effective execution of practicum process. They reported the benefits of these strengths as offering equal practicum opportunities for counselor trainees by ensuring consistency among faculty members/supervisors in the programs as well as creating standard practicum procedures in their programs.

I think that when they do it in different environments, they will have difficulty in maintaining the professional relationship required by the counselor. I care about the unit/clinic because I think that the counseling will take place under more professional and appropriate conditions. (P11)

At the moment, our evaluations are common because we are probably five or six, with how many supervisors; six, probably six, six supervisors are in the same cohort. There is no difference between trainees... And you clearly present the requirements to the trainee at the beginning of the year. In the first lesson, we say, "This is our requirements, you are responsible for them during practicum. Here are the features you should pay attention to in the practicum. How do you start, how do you end?" Besides, the trainee becomes clear about what to do. (P18)

3.2.2. Challenges

Majority of participants reported the main challenge of practicum process related to the place of counseling sessions. Despite having a counseling unit/clinic in their program, the high number of counselor trainees caused a backlog in the appointment system of the unit/clinic. Therefore, counselor trainees had to hold their sessions in the classrooms, homes, or dormitories. They stated that this creates a serious obstacle in the formation of professional attitudes and behaviors of counselor trainees.

Yes, we have a counseling unit/clinic here. In our own unit/clinic, we have three individual counseling and one group room. But it is not enough. (P17)

How it affects the course, a decrease in professionalism. Indeed, the importance and respect given to this work is all diminishing. Actually, this is also a dilemma, that is, a dilemma that I live in myself. Indeed, right or wrong is something that needs to be discussed a lot. Either this trainee will not do it at all or he will do it like this but when he does it that way is not right. In fact, my trainees told me this at the end of this semester's lesson, when they used the office that I just mentioned, they said it makes a difference. I really felt the difference. Even their attitudes are changing, so there is a big difference between their reactions in a more appropriate environment, and the one made at home. (P15)

Another challenge of practicum process mentioned by majority of the participants was related to the clients, specifically finding clients, client dropouts or irregular attendance to sessions, and certain client characteristics. Participants stated that

the responsibility of finding clients rested with the counselor trainees, while some find clients easily, others have difficulty, turning into a problem that affects the practicum process.

Besides, regarding client characteristics, participants reported that the most easily accessible profile to recruit for counseling was university students, but the main reason for them to come to counseling was being motivated to establish social/emotional relationships with counselor trainees. Another client profile was counseling students, and similarly, they also attend out of curiosity, hence the sessions did not continue. Participants also mentioned other difficulties about clients outside of the university environment and their entry to the university campus, requiring special permissions particularly when the sessions held after work hours of the university.

One of the other challenges some of the participants reported was not having common practicum process and procedures. For example, some of these difficulties were a) counselor trainees making comparisons between the supervisors' different expectations, b) then, wanting to be assigned to another supervisor with different practicum regulations, c) supervisors needing to explain the reasons for different practicum regulations not only across different supervisors but also across GCPs in different universities. They also added that the required number of clients and counseling sessions were very inadequate for an effective practicum process.

There was a problem like this in previous years; When you divided trainees in the groups, everyone (supervisor) started to teach what they knew. This time there was a deterioration in the standard. (K14)

Apart from this, there may be surprises and ethical violations. For example, there may be those who try to deceive the supervisor, there may be those who try to get counseling at home with a close friend, but try to camouflage it. (P7)

A few participants stated the personal, ethical, and professional readiness of counselor trainees as another challenge. While some of the participants emphasized weak relationship and communication skills of some counselor trainees made it difficult for them to find clients, unethical and unprofessional attitudes and behaviors of some counselor trainees (e.g., counseling with their relatives, making up the process with their relatives as clients, having their relatives transcribe the sessions) made it difficult to follow and monitor.

3.2.3. Proposed Solutions

The majority of the participants made suggestions to tackle with the challenges and to carry it out more effectively. One of these suggestions was creating and/or strengthening the practicum standards where all supervisors would comply and oversee application of these standards. The recommended standards included determining the numbers of clients, counseling sessions, and transcriptions, as well as the place of counseling sessions. More specifically, these suggestions could be listed as: a) at least two or three clients with a variety of diversity (e.g., age, gender), b) at least five or six sessions with each client so the total number of sessions/practice hours can be at least 10-12 sessions up to 20 sessions.

I would like to increase the number of sessions and reduce the number of trainees. In other words, it is necessary for them to take 20 sessions for basic skills at least for the first semester, but I want to have three trainees and four trainees. (P8)

Another suggestion of the participants was to improve the physical infrastructure of the counseling unit/clinic in the programs by increasing the number of individual counseling rooms and strengthening the technical equipment (e.g., recording devices). In addition, a few of the participants stated that the structure and functions of unit/clinic could be revised from being a physical practice location to fully functioning counseling clinic with a secretary and/or coordinator. Then, all of the practicum procedures and paperwork (e.g., audio-video recordings, transcript, session summary preparation) within this unit could be designed to ensure effective practice and be more in line with ethical principles.

In other words, it is very important to have suitable physical facilities and places for this. Having a better unit/clinic, a large number of counseling rooms, and all of this can be recorded; I would like to have a secretary at work, a place where experts are present and people interact. (P14)

4. Discussion, Implications and Suggestions

Results obtained from the sequential stages of current study provide detailed information on the practicum process and requirements of ICP course in GCPs. Similar to the practicum standards and guidelines of counselor education literature

(e.g. CACREP, 2016; Mobley & Myers, 2010; PACFA, 2018), participants offered rich and comprehensive information regarding the current status of practicum with strengths, challenges, and proposed solutions, specifically, on the required number of clients and counseling sessions, client characteristics, finding clients, the place of counseling sessions, and required practicum forms.

As a requirement of the ICP course, we found that all counselor trainees in GCPs practiced individual counseling with at least two real clients, conducted seven to 10 sessions, and used informed consent and intake-interview forms in their practices. When compared the previous research findings noting that some counselor trainees never practiced counseling in the scope of ICP (e.g., Meydan, 2015), our results were promising and pointed out that a common understanding has been establishing on the critical role of practicum experience in GCPs. In addition, the professional forms that were widely used in practicum also showed that counselor educators paid attention to the execution of practicum at a professional level. Unfortunately, the results also indicated that there were differences between GCPs regarding the required number of clients and counseling sessions. Therefore, in parallel with the results of the previous research studies (e.g. Atik, 2017; Korkut-Owen, Acar, Haskan, Kızıldağ, 2011; Pamukçu, 2011; Tuzgöl Dost & Keklik, 2012), it is critical to ask to what extent these differences are affecting the quality of practicum process and the competencies of graduates from different GCPs. Therefore, it is necessary to clarify the standards and increase the number of practicum hours to both enrich the existing practicum processes and ensure partnerships among the GCPs.

Regarding client characteristics, although there were differences between GCPs, the results revealed that counselor educators identified client characteristics mainly focusing on the age and nature of clients' problems for the purposes of developing counseling self-efficacy of trainees while ensuring client safety and well-being. Thus, the counselor educators were diligent about shaping and standardizing the practicum process as purposefully and systematically as possible. An overview of the findings highlighted the necessity and importance of determining the clients with whom the counselor trainees could hold counseling sessions during practicum. Based on our findings and the relevant literature (e.g. Pate, 2010; Wester, 2010), it seems critical to address certain questions in determining client characteristics for practicum: a) what are the developmental characteristics and practicum needs of counselor trainees?, b) in the view of these characteristics and needs, what age groups of clients with what kind of problems would be appropriate?; c) considering counselor educators/

supervisors' professional characteristics (e.g., education, experience, expertise), what kind of counseling services they could provide supervision for? d) how much offered counseling services within the scope of practicum address the well-being of the clients? Based on the findings, it seems reasonable to suggest that, in practicum, counselor trainees can provide counseling to the clients with developmental problems and to whom trainees are developmentally close. As they better manage their performance anxiety and their counseling self-efficacy begin to develop, trainees could provide counseling to the clients with a variety of problems from different age groups.

Our results also showed that one of the big challenges of practicum process was related to finding clients, paralleling previous research findings (e.g., Aladağ & Bektaş, 2009; Büyükgöze Kavas, 2011; Zeren & Yılmaz, 2011). The processes for finding clients for ICP where all responsibility was put on the counselor trainees appeared as a critical problem that needs to be resolved. One of the counselor educators recommended recruiting clients through courses (e.g., guidance) for different program students (e.g., teacher trainees) by offering individual counseling as an alternative for doing homework. It is noteworthy that this method has also been mentioned in the literature to facilitate practicum processes with "voluntary student-clients" (e.g., Wester, 2010). By utilizing such methods, the GCPs and counselor educators may become proactive with recruiting clients for the counselor trainees, ensure the number of sessions that must be completed by counselor trainees, and monitor the quality of practicum process.

Despite challenges, one of the main strengths of practicum process was having counseling units/clinics in some of the GCPs where counselor trainees conducted their sessions. The counselor educators underlined the importance of having a unit/clinic in offering an appropriate practicum environment for the counselor trainees, enhancing their professional attitudes and behaviors, and increasing the quality of supervision they receive. On the other hand, counselor educators also stated that the counselor trainees had to hold their sessions in different places (e.g., home, dormitory), as the existing equipment of their unit/clinic was insufficient. These processes involved some of the trainees' unethical and unprofessional attitudes and behaviors (e.g., counseling with their relatives, having their relatives transcribe their sessions), leading to difficulties with close monitor of trainees' practices for gatekeeping. These findings could be highlighted as quite alarming to address the critical questions of, to what extent practicum have been carried out within the framework of ethical rules and how

much such processes model ethical attitudes and behaviors to the counselor trainees?

The overall findings with strengths and challenges of the practicum process revealed that the counselor trainees conduct individual counseling with the real clients, they use professional forms, GCPs have counseling units/clinics for practicum, and all these conditions contribute to the execution of quality practicum processes and the development of professional attitudes and behaviors of the counselor trainees. All these findings are important indicators of the efforts and progress made for efficient and effective practicum processes of counselor training in Turkey. It is quite clear that the counseling units/clinics form a basis for the professional structure of the practicum and have a great role in the presented progress. This role is parallel to the reported functions of training and practice units/clinics of counselor education programs in (1) providing more comprehensive and intentional institutional control for practicum and its supervision and (2) providing ideal environments not only for counselor trainees but also for counselor educators/supervisors to develop professional identity at the highest level and to ensure professionalization in the field (Borders, 2010; Mobley & Myers, 2010; Wester, 2010). On the other hand, significant difficulties in the process of finding clients and the locations for the sessions were reported, that hindered the quality of practice, professionalism, and supervision. These results are also very consistent with a recent study conducted with a large sample of counselor trainees (Atik, 2017). Therefore, there is need for further discussions and research studies to overcome these difficulties and contribute to the establishment of practicum standards by utilizing the strengths of current practicum processes (e.g., increasing the number and quality of counseling units/clinics). Such efforts will also warrant GCPs and counselor educators to adopt, follow, and defend these standards.

Whether counselor trainees carry out their counseling sessions with real clients in the counseling units/clinics or in alternative environments, the primary responsibility for the execution and coordination of the practicum process falls on to the head of the department as well as the instructor in charge of supervision of ICP course. In other words, the administrative supervision has a critical role in ensuring high quality clinical supervision process. Administrative supervision is shaped around two main responsibilities; a) providing opportunities and support for the professional development and counseling performance of counselor trainees at the highest level, and b) protecting the safety and well-being of the clients by ensuring the effectiveness and efficiency of the services offered within

the scope of the practicum (Henderson, 2009). Therefore, counselor educators/supervisors must consider the “potential harm that can be done to the client in case of providing less than the best service that can be provided to the client” from an ethical point of view (Pate, 2010; Remley, 2010). It is noteworthy that, in countries where the practicum in counselor education is well established (e.g., the United States, Australia, England), counselor education programs create “Practicum Handbooks” describing the process and procedures. However, such standards and procedures for practicum courses in GCPs are lacking in Turkey. Our findings showed that informed consent form seemed to be the only professional precaution in the practicum process. In the light of all these discussions, we believe it is necessary to develop similar guidelines to maintain the steady progress made in the quality execution of practicum processes in counselor education in Turkey.

Using the examples from the literature, a Practicum handbook or guidelines may/should include:

- a) The requirements and procedures for conducting counseling sessions in counseling units/clinics and alternative environments (until the units offer sufficient structures)
- b) The details for certain procedures, such as acceptable client profiles and characteristics, the process of finding clients,
- c) The procedures and tasks for the coordination of practicum supervision process,
- d) The ethical and legal principles and rules ensuring the specified procedures being carried out in professional manners
- e) Clear and detailed procedures for ensuring and protecting the confidentiality of practicum documents at the highest level of precautions, especially with audio and video recordings of sessions, transcripts, and session reports
- f) Required steps and procedures on what to do in risk and crisis situations, such as self- and other- harm or suicidal ideation
- g) The rules and interventions regarding ethical sanctions for counselor trainees who do not behave in accordance with the established practicum procedures and rules

For the counseling units/clinics, the majority of the counselor educators made suggestions for increasing the number of individual counseling rooms, strengthening the technical equipment (e.g., recording devices), improving the

physical infrastructure, and systematizing the coordination of the units/clinics of GCPs. During the interviews, we observed that some of the counseling units/clinics in GCPs consisted of only one or two rooms, while others were their own separate place with an entrance as well as individual and group rooms with observation decks opening to the same corridor and equipped with a secretary or voluntary counseling students as staff. Thus, there appears to be an urgent need to explain the role and importance of the practicum units/clinics to the university administrators (e.g., rectors, deans, department heads) to ask for and receive the necessary resources and support. Such procedures may also include conducting studies for grants that can be obtained from different institutions and organizations. Additionally, to get the support of administrators and/or other institutions/organizations, it may be important for the counselor educators to conduct outcome studies to show the role, importance, and contribution of counseling practices in these units/clinics in developing counselor competencies and creating positive client outcomes, through preparation of year-end evaluation reports of the counseling services provided to clients in these units. All these efforts would also contribute to the accountability and efficiency of these units/clinics (Helm, O'Halloran, & Kahlo, 2010). Finally, counselor educators may consider reviewing the literature on the benefits and risks for utilizing practicum units/clinics as "Community Mental Health Center" or "Research Center" (e.g. Lauka, McCarthy & Carter, 2014; Mobley & Myers, 2010). As they discuss the purpose, role, and functions of these units/clinics in professional platforms, counselor educators could determine future practices and vision of clinical training of counselors in Turkey.

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CHAPTER V

A NEW PERSPECTIVE ON EDUCATIONAL POLICY: ORGANIZATIONAL ALIENATION AND ORGANIZATIONAL DEMOCRACY IN SCHOOLS

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Theoretical Background

Democracy

Throughout the history, humankind has witnessed so many forms of governing the social, economic and cultural aspects in terms of regulating their present conditions. As far as the scientific research points out, it is seen that there has been an evolution in the styles of the management of the social order, which has a very long history (Nişancı, 2015). In the beginning of the prehistoric ages, the first people were about to gradually evolve from a collective manner of directing the procedures within the lifestyles to the approach of gathering around a leader / manager to control and organizing almost all social and economic movements. Regarding this period, it is also observed that some elements of the democratic management formation existed in the primitive communities. This can be exemplified as the equality of the tribal members, the participation of each member in the decision – making processes, etc. However, with the transition to the state – community from the primitive one, these properties disappeared, and

the community allowed for its management by the minority emerging out of itself (Uygun, 2017). Thus, democracy, what we now assume, was to wait for stepping on to the stage of history for a long time. To clarify, the classical roots of the term have only approximately 2500 year – old background compared to an older and more comprehensive history of the humankind (Dahl, 2019).

Widely accepted, the initial illustration of democracy is seen in Ancient Greece, where the basic principles of contemporary forms of the concept were also established. In the sites of the Ancient Greece, peoples institutionalized the democracy as a politic system, which, in Dahl's manner of expression, means a deep transformation in equal significance to be compared to the invention of the wheel (Dahl, 1993). Incidentally, it would be to the point to underline the fact that democracy has absolutely been one of the most controversial and comprehensive terms within the academic literature, on which no consensus has been reached with the existing definitions and meanings for the concept (Aktaş, 2015). Hereby, focusing on the roots of the word, it is essential to underline the fact that a compound structure be used through the formation of the word. That is, the two distinct Greek words, “demos” and “kratia” are the constituents of the word, democracy. While the former part indicates the public or people, the latter refers to the power, management, or capacity. In that respect, basically, democracy accounts for the management of the public, or the power of the people in the management procedure (İşçi, 2012).

The evolutionary process of democracy is seen in numerous ways in various periods of the history. To illustrate, the Ancient Greek version of democratic foundation within the society ended with the Macedonian sovereignty over the site order and democracy – based regimes. As a result, democracy has vanished in the stage of history for a very long time and had to wait for its recreation in the New Age for nearly about two thousand years. The appearance of democracy in the New Age, namely modern democracy, emerging in the 18th century, mainly distinguishes from that of the Ancient Greek period in the way that it has been carried out in the scale of nation – state in Europe and North America and that it, with the emphasis on the differences and varieties, focuses on the supervision of the management by the people rather than using it specifically as it was during the Ancient Greek (Uygun, 2017).

Organizational democracy

The Modern Age version of democracy has obviously occurred not only in the management of the governments but also in the work life, especially the factories,

as a direct effect of the conditions prevailed by the Industrial Revolution and the implementation of the newly rising capitalist system within the workplaces of the labourers. Thus, a new term, namely industrial democracy put forward by Sidney and Beatrice Webb in 1897, or workplace democracy, started to get its place in the literature, which is now commonly attributed to the concept of organizational democracy, and it was argued by them that industrial democracy could help labourers gain the basic rights in an equal and free conditions in the workplace (Işık & Okyay, 2019).

With the advent of the industrialization, labourers were forced to produce more by the owners of the factories in order to increase their profit thanks to the labour of the workers. In that respect, labourers converted into machines the aim of which was centralized at enabling the capitalists to enlarge their property and earnings and which were driven to alienation from the communities they already belonged to. In that respect, Clark (2011) underlines the fact that, with regard to more equally distribution of the economic sources of the organization and getting the basic democratic rights in addition to the elimination of the profit difference between the workers and the employees, organizational democracy culture started to flourish in the workplace area. Likewise, some forms of democratic establishments related to the management of the organizations were observed in time. To illustrate, professional associations, unions and institutions emerged so that democratic rights in the factories could be achieved, that is what refers to the organizational democracy. From this point of view, Ünsal (2006), underlines the fact that the unions' gradual emergence and their becoming aware of the power they have has contributed much to the development of workers' democratical consciousness and the desire of the unions to get some say in the managerial processes as their representative institutions. Accordingly, Işık and Okyay (2019), emphasize the significance of that process as such: the outbreak of the Industrial Revolution brought about the remarkable alterations within the incomes of the workers, their worsening situation at the factories that tremendously increased in number. The effects of this change in the production area caused some rejections and reactions within the factories, leading the foundation of the unions that initially aimed at the improvement of the economic and working – related conditions of the labourers. Subsequently, in time, they also struggled for getting a right and having a say in the management of the factories. Thus, the roots of the organizational democracy were established in such a gradual way.

This considerable contribution, from the beginning of the 19th century to present, has had a remarkable impact on the improvement of the organizational democracy in other social institutions as well. In that aspect, Seçer (2009) emphasizes that the concept, in time, has gone beyond the narrow framework of employer – employee relationship and evolved into a term that directs the society itself by embodying it. In spite of the naming of the concept to account for the organizational democracy has included a wide variety of usages such as participative management, participation in the decision – making, worker control, self – management, workplace democracy and industrial democracy in the literature, the main objective here attaches importance to the overall acquisition of the rights of the labourers or workers at a workplace and their participation in the active management process of it (Geçkil, 2017). Hereby, it would not be wrong to underline the fact that organizational democracy attributes great significance to the overthrowing of the hegemony of a one – person – management and the pressures over the gaining of the labourers.

Organizational democracy is generally defined as the participation of the members of the organization into the management of the organization and the working procedures (Harrison & Freeman, 2004). Harrison and Freeman (2004) again underline the nature and the characteristics of this concept in such a way that in terms of organizational processes and tasks, the workers in the institution actively take part in defining the available and probable conditions of the organization thanks to the application of democracy regarding a wholeness of certain decisions taken by the common mechanisms of determining and also equally making use of the economical improvements and gainings.

According to Witteloostuijn and Jong (2007), democratization of an organization basically means the process of decision – making being implemented in a democratic way, that is enabling the employees, regardless of their status, to acquire equal rights in terms of the firm's, institution's or the factory's managerial policies. In that respect, it is obligatory that they all have to be the active stakeholders of the decision – making process. That is, the crucial decisions for the sustainability of the equal and free existence of the employees are to be assessed with the framework of the democratic participation perspective. Henceforth, it can be implied that organizational democracy faces up to the community as the wholeness of the principles, in a free society, on the basis of the participation of the administration and the representatives of the labour into the governance mechanism (Seçer, 2009).

Regarding the educational institutions, specifically schools, the impact of the organizational democracy on the achievement of the targets of the organization and the contribution of the teachers to the institution is a widely – known fact. Therefore, the role of the school administrators or leaders in this context is significant. As for the teachers, they are probably inclined to accomplish much more things in a democratically managed school as a result of their feeling liberated, tolerated and having the right to participate in the management of the institution they work in. Besides, students at such a school are to directly benefit from the acquirements and contributions of the organizational democracy practices. With regard to all of these, Apple and Beane (1999) attach importance to the following reality with stressing the fact that the main characteristic of the schools managed in a democratic style is the wide range of stakeholders that actively and equally take part in the organizational management procedures extending from the professional staff of the school to the students, their family and the school community. With this regard, it is also underlined that classroom procedures in terms of teaching – learning processes are determined on a consensus reached both by the teachers and the learners in order to provide them with getting the opportunity to having the right to speak about the topics that will have an effect upon their futures.

In direct harmony with the statement above, based upon my educational career as a professional teacher having worked in various types of schools ranging from primary schools to qualified secondary education institutions, the fact that the effectiveness, dedication and efficiency of the teachers and the participation of the students within the managerial procedures is generally at a high level in a school where remarkable importance is attached to organizational democracy through the implication of the management procedures can be explicitly linked to the considerable the impact of the organizational democracy at educational institutions. Bearing this in mind, with regard to the organizational democracy at schools, Tamer (2011) points out the fact that due to the developing and altering conditions of the educational management, school leaders, today, are to pay attention to various elements ranging from the economical and social factors to the political ones that affect their efficacy and efficiency directly and henceforth, they have to implement the democratic management and leading practices in order to create the organizational democracy within their schools and get rid of the pressure and stress of the factors that prevent them from carrying out the educational tasks by themselves in a desired way.

The presence of democracy in the educational institutions are to explicitly pave the way for the teachers and students to get engaged with the culture and the nature of the organization, and thus, they feel less distracted or alienated from the organization and the educational process and activities. According to Allen (1999), a democratic school helps the students improve their problem – solving skills, decisions taken in a manner of discussion and participation contribute to the school’s efficacy and thus this provides the students with a better organizational structure for their utmost learning as well.

As for the characteristic property of a democratic – style school, Williams, Cate and O’Hair (2009) underlines the fact that in contrast to the schools where the preliminary importance is attached to the concept of discipline and some classical problems and change or improvement is bound to the external forcing, the democratic schools mainly focus on sharing the innovative educational models and meeting the needs of the students on the basis of cooperation and trust, which undoubtedly reminds us of the distributed leadership within the organizational structure of those institutions.

Educational institutions are the main motives for a society to improve in an effective and desirable manner so that the new generations could get the opportunity to lead innovative, modern and civilized lives in the future. In that respect, so as to achieve these mentioned qualities within the framework of a society from a single individual to a wide community, democratic practices in the educational institutions, especially at public schools, must be attached utmost significance in terms of enabling the children, the next generations of the societies, to get the opportunity to be equipped with the basic principles of equality, social justice and freedom of speech. Meanwhile, as for the main dynamics of the education, teachers might make a remarkable contribution to both the students and the schools thanks to the implementation and the presence of the organizational democracy within their institutions. According to Mercogliano (2006), so as to support the aforementioned argument, schools that are organized and managed in a democratic understanding put remarkable emphasis upon students by providing them with the opportunity of freedom and utilize the democratic criteria and implications within the management of the school and in such type of schools, students feel themselves more liberated thanks to the flexible structure of the institution.

Orujova (2020), in line with the indicated pros of the democratic practices within the educational organizations, highlight the fact that organizational democracy provides the members of the organization, both the teachers and the

students, with getting respect for their own rights and freedom, having the chance to improve their self – management and autonomy opportunities and sharing the responsibility, success and outcomes of the educational processes altogether, which exactly means the building of a more humanitarian style of management within the institution itself and outside it, namely the involvement of parents and other related communities around. In that respect, Lahtrop (2005) states the fact that when the democracy is implemented within the management of the schools, such schools evolve into the institutions where students experience and practice the values of trust, equality, respect and freedom and democratic principles are reinforced and thus, they get to know how to solve the real – life related problems, work in an academic way and manage their freedoms and responsibilities. All in all, it can be explicitly stated that not only the research in the field but also the implications on the real life conditions illustrate that the benefits acquired by the appliance of democracy at schools are really at a high level and all the members of the organizations led in such concept of management feel more happy, motivated and ready to make considerable contributions to their institutions thanks to the positive effect of the democratic leadership practices and more participation areas for everyone in the organization. In that way, the process of educational interaction within schools can more easily be achieved and all the stakeholders of the institution can experience the benefits of the organizational democracy in a more clear way. To illustrate this as for the students, Morhayim (2008) underlines the fact that schools where organizational democracy is appreciated and implemented provide the students with the environments in which students get the opportunity to have a direct effect upon their self – learning by emphasizing the feeling of responsibility and to demand authority and control on the decisions, in other words, democratic schools or schools that implement organizational democracy pay attention to the principle put forward by Apple and Beane (1995), which focuses on individuals’ having the right to say over the decisions that affect their own lives, and henceforth, stress the fact that students can also play a considerable role within the management of the schools.

Alienation

Considering the historical evolution of the human beings with regard to their being a social entity, it is clearly seen that there has always been an integrated way of individual interaction within their families, groups, cultures or the societies they live in and belong to. With this in mind, it is quite rationale to

emphasize the fact that since the very beginning of the social groups in history, human beings have occasionally become estranged from each other, the social environment or the period they live in. This state of individual's becoming apart from oneself, from other individuals and generally the society is expressed by using the term of alienation. According to Akdeniz (2017), the term carries a wide range of meaning such as the extreme isolation of a person from the products of one's labour and being separated from the socialization resulting occasionally from disgusting with some aspects of the life that might in fact be attractive or valuable or being indifferent to them. In the same way, Yılmaz and Sarpkaya (2009) states that alienation means individual's becoming apart from oneself, the product one has created and one's natural, social, psychological and cultural environment, thus leading a life under the sovereignty and determinism of them. In terms of philosophical explanation for the phenomenon of alienation in an overall perspective, Cevizeci (2002) underlines the fact that alienation is the state of things and objects' seeming strange, remote and indifferent, becoming ignorant of the things once shown interest to and the people with whom the relationship of friendship existed in the past and not caring them, even feeling weariness and repulsion.

As for the historical background of the term, it can be said that Hegel first used the word "alienation" so as to indicate the fact that it is a phenomenon occurring as a result of the individual's distinction between one's physical and spiritual existence and resulting from the individual's not perceiving oneself as thinking and feeling entity. The process of alienation can be defined as the separation of the singular spirit, so as to reintegrate within the state of its self – awareness, from the social substance. As for Feuerbach, alienation is the state of human's reflecting his / her essence to the outer. In contrast to Hegel, who, by referring a comprising power to the spirit, advocates that alienation, having established the objective area of History and external area of Nature, is a fact; Feuerbach underlines that it is imaginative. According to Feuerbach, alienation is the human's producing some fictional essence presented as God, but not constituting an objective world as in the Hegel's explanations. Hereby, the images of God and religion, which symbolize the alienation, act as a rearing mirror for the human (Demirer, Markus and Özbudun, 2008).

On the other side, the initial philosopher to analyze alienation in a conceptual and scrutinized way is Marx (Minaslı, 2012). Ollman (1971) puts forward the fact that Marx is different from the philosophers in that he handled the concept of alienation by referring to the term underlying its being

an intellectual entity in which capitalist production styles destroy the humans, their physical and cognitive conditions and the social procedures they belong to. Additionally, the theory of alienation is, according to Marx, the intellectual presence on which capitalist production styles show itself as the destructive effect upon the social process where the humankind is a constituent with its physical and mental situation, which underlines the fact that this theory of Marx, with great extent of scope, centralizes the individual that is on action. So as to support this statement, Marx (2007) systematically classifies the alienation into four distinctive categories as human being's alienation – here, it is the worker named as human being - : with one's productive activity, with one's own product, with other human beings, with one's species.

Of these four essential classifications above, the first dimension is the alienation with the productive activity, with which the alienation of the workers to their labour is emphasized in a thorough way. Marx (2007) underlines the essence of the alienation of the worker in the comprehension that emphasizes working is external to the worker and not appropriate for his subjective entity. Consequently, one does not approve oneself but rejects, feels uncomfortable, is unhappy, cannot improve one's physical and cognitive energy in a liberated way, corrodes one's body and destroys one's mental presence. For that reason, the worker feels oneself real only outside the work, and feels one's work outside oneself. When one is not working, one is at home; when one is at home, one is not working. That is to say, one's working activity is not on the basis of willingness, but by force, it is the situation of being made to work by compulsorily. In that respect, the activity of working is not the act of meeting a requirement, but a tool for the meeting of the requirements except one's working (productive activity) (Ollman, 1971).

The second dimension of Marx's alienation theory emphasizes the alienation of the worker to one's product. The more the worker sacrifices oneself, the more powerful the alienated objective world he has created against oneself becomes. As oneself – one's inner world becomes impoverished; he becomes less belonged to oneself. The worker depicts one's life into his object, however, now, his life does not belong to oneself but the object. Thus, the greater this activity is, the greater the worker's deprivation of the objects becomes. Whatever the product of one's labour is, it does not belong to one. For that reason, the more enormous the product is, the more insignificant one becomes (Marx, 2007).

The next classified item in the theoretical framework is the alienation of the worker with the other human beings. As in the relationship of the worker

with one's product, one's alienated relationship with the human that owes the product (the capitalist) is the compulsory result of one's productive activity (Ollman, 1971). In that respect, Marx (2007) specifies the phenomenon in the way that via the alienated labour of the human, one does not only establish the relationship with the object and the activity of production but also makes up the relationship of the positions of the other human beings against their own production and product and the relationship with one's position against the other human beings. As one creates one's product as a loss and a product that does not belong to oneself, he creates the hegemony of a person who does not produce over production and product, too. As he excludes oneself from his own productive activity, he donates an alien the activity that does not belong to one, the one who is alienated to work and stays out of it, the capitalist or the one, however anyone prefers calling the lord of the labour.

The last dimension emphasized within the Marx's related theory is the alienation of the human being (worker) with one's species. This aspect of the alienation can be considered as a distinct explanation developed with a point of view of the individual's species – belonging (Ollman, 1971). The labour that is alienated by taking the object of the production apart from the human pulls the species life, the real species objectivity off oneself and transforms one's supremacy over the animals into a loss that one's inorganic body, the nature takes from the one. In the same vein, the alienated labour degrades the autogeneous activity, the free activity into a tool and thereby makes the species life of the human a tool of one's physical entity (Marx, 2007).

Besides Marx, it can be said that Durkheim and Simmel are the cornerstones that introduce the concepts of alienation / reification to the modern sociology. The concept of alienation is not directly referred within the Durkheim's writings. However, the state of anomie, which is defined by him as normlessness or the norms' losing their validities, creates the foundation for the definitions of alienation derived from Durkheim. As it is known, Durkheim argues that social distinction based upon work – sharing takes the place of the mechanical solidarity leaning against the social pressure on the individual and leads to the organical solidarity. While Durkheim states that work – sharing is beneficial within the stabilizing the society, he draws a unique style of discourse that is rather different from Marx's. According to Simmel, meanwhile, the worker's disjoining from the production tools creates a difference between objective and subjective working conditions. What the worker does within the process of commodity production and the production tools and the product disjoin

from each other. As for the labour force of the worker, it actually gets some commodity character. Consequently, when the labour force is commoditized, differentiation within the divisions of the personality is experienced, and these get to become independent objects gaining independence from the personality (Demirer, Markus and Özbudun, 2008).

As for Erich Fromm and Herbert Marcuse, it can be stated that they have jointed a psychoanalytic synthesis derived from the materialist interpretation into today's alienation discussions. Fromm stresses the fact that when social production and sharing relations are not organized in the way to meet the basic requirements of the human, social character acts as a alienating role and therefore alienation becomes the experience style that the person feels oneself as the estranged. Marcuse, on the other side, while taking the concept of alienation into consideration, indicates the fact that as for the impact of the modern industry and the consumption society for the human, the artificial needs have taken the place of those of the factual ones, the human has obeyed it by losing the criticism against the social structure and thus has become alienated and unidimensional. In addition to this, he also underlines that alienation becomes completely objective and the alienated person tails out within one's own alienated life (Demirer, Markus and Özbudun, 2008). In terms of empirical sociology, the analysis of alienation is scrutinized within the studies of Seaman in the context of measuring the concept through the sub dimensions. Seaman (1959), suggesting that the alienation be analyzed in terms of the personal attitude of the agent, namely the socio-psychological interpretation (Demirer, Markus and Özbudun, 2008), classifies the elements of the alienation as weakness, meaningless, normlessness, isolation, and self estrangement.

The first dimension put forward by Seaman (1959) is weakness, which he defines as the state of the person's not being able to determine the expectations and the probabilities that he / she can realize on one's own and not thinking that one is not able to do anything to alter the result. He also adds that weakness is the state of having no right to say related to what he produces and what he acts within this process. Weakness, which can also be expressed as feeling as if nothing when alone, has been characterized by Seaman (1959) in another view, as the state of not affecting the flow and organizing of one's labour's outcomes. (Çavuş and Biçer, 2019).

Meaningless, the second dimension of the alienation is the human's not getting sufficient information about what to believe and within the process of decision – making, the human's truths not overlapping those of the society

(Seaman, 1959). Meaningless is also the total of the failures within the exact sharing of the group experience, that is, the state of the individual's not knowing what and which of the general truths to believe. In that respect, it can be emphasized as well that it is the state of the individual's not being able to find a foundation in case of the surrounding occurrence of the different values, criteria (standards), and truths (Yılmaz and Sarpkaya, 2009).

The third dimension, namely normlessness, which is often associated with Durkheim's concept of anomie, is the disfunctioning of the individual's value judgements within the society or the individual's not being able to put forward his / her value judgements. On the other hand, Merton, inspired by Durkheim as for the concept of normlessness, has implemented it within the socio – psychological area and has defined the term as the instability and inappropriacy between the ends and means (Yılmaz and Sarpkaya, 2009). According to Seaman (1959), however, normlessness is associated with meaningless and weakness, and he also underlines the fact that normlessness is the state in which the expectations, through the process of achieving the ascribed goals, are so high for the individuals that they require the behaviours that are not socially approved (Demirer, Markus and Özbudun, 2008).

Isolation, the fourth dimension of the alienation indicated by Seaman (1959), is defined by him as the state of underrating the typically high – level beliefs or targets by the community within an ascribed society and he adds that the term generally refers to the state of the intellectuals' being disconnected with the popular cultural standards within the society (Demirer, Markus and Özbudun, 2008). Seaman (1959) has underlined the fact that the alienated human facing the social isolation is not able to feel oneself comfortable within the occasions required by one's work and social life. In the course of time, the nature of the human might show inconsistency with the social rules, values and norms. In that case, the individual might miss the opportunities of socialization as a result of losing the ability of establishing interaction with the other members of the society. Nonetheless, the personality of the individual might not internalise the whole of the social rules. The basic lifestyle of the society and the cluster of rules might contradict with the nature of the human. Herewith, the isolation by being keeping to oneself becomes inevitable (Çavuş and Biçer, 2019).

Self – alienation or self – estrangement, the fifth and the last dimension of the alienation put forth by Seaman (1959), is, in the last analysis, the human's becoming less than one normally could manage to become, in the case of society's conditions becoming different, which is felt by lack of confidence, commitment

to appearance and conformism. Besides, it is linked to the alienation to the process of working. Within this context, alienation can be defined as the linkage of the ascribed behaviour to the expected future awards, which remain outside the activity itself. In respect to this, self – alienation is the individual's not being able to find an activity that will award oneself (Demirer, Markus and Özbudun, 2008). As well as this, Seaman (1959) mentions about the two aspects of the self alienation within the working context; making one's case while working and the missing internal sense of the working. In this regard, he states that the self – alienated individual concentrates on the economic and security – related opportunities provided by the work and also advocates that individuals, who take a dislike to themselves or become self – alienated, gets almost no personal satisfaction from the tasks they do or the roles they act (Çavuş and Biçer, 2019).

Though the conceptual background and the historical framework of the term alienation has been tried to clarify so far above, it is a significant matter to underline the fact that alienation consists of a wide variety of information spectrum and thus it should be focused on in a more scrutinized way so as to enable the overall comprehension of the concept with a glance of efficiency and accuracy. Still, it is expected that the aforementioned information related to the concept of the alienation will be of great importance for those who want to learn the basic content and scope of the term. However, now, in the context of this study, it is better to pass on to the new heading stressing the emergence of the alienation within the institutions, namely organizational alienation, and how the term has affected the organizations till now.

Organizational alienation

As widely known and accepted, organizations are the structures that consist of the members who come together in order to realize a common and pre – defined goal or reach a destination. Etzioni (1964), similarly, defines the organization as a social unit formed so as to attain determined aims. Hereby, the individuals that comprise the organization have utmost importance for the operation and functioning of the administration, especially in the working sector. With this in mind, it would be appropriate to refer to the emergence of the factories increasing tremendously soon after the Industrial Revolution. The factories have almost always relied on the presence of the workers and their labour since that time with the aim of raising their incomes to the top level. Nevertheless, the factors, such as the harsh conditions of the workers, the low salaries, unfair and unequal management system, have led to the emergence of a new concept to

be used in the literature, namely, organizational alienation, which has also been defined as work alienation in various studies. As Tummers et al. (2015) points out, the concept of work alienation, or organizational alienation in this study, has attracted much interest of the academicians and implementers for a long time.

Çavuş and Biçer (2019) underlines the fact that the factors such as working conditions, the general style of functioning, the properties of the work carried out, the rules, values and principles of the organization, punishment and reward system, working environment might be attached utmost importance in terms of their effect upon organizational alienation. In a working environment where the worker has difficulty in expressing oneself, taking initiative and feeling integrated within the decision – taking processes, the individual will surely get to feel lonely in time and see oneself as passive and useless and be alienated to the institution one works for.

From the initial years of Industrial Revolution to the post modern period, production styles and techniques have evolved into some advent forms, as for both the management strategies and working conditions. However, the fact that alienation felt by the workers or employees still remains as the significant factor affecting the structures of the organizations indicates that organizational alienation presents as one of the major topics within the management literature and real sector. In line with this idea, Swain (2019) argues, by founding his point of view upon the related theory of Marx (2007), that the origin of the alienation is the social relations that creates the capitalist economy model, which is the classification of the society into two conflicting groups, the one that has the production tools and the other that has to sell one's labour, and the transformation of the labour into the commodity. However, in this respect, what is stressed in this framework as the most important factor is not the certain type of labour and certain kind of workplace, underlining the fact that heavy machines are not the primary source of alienation. Marx (2007) closely deals with the sovereignty of heavy machines over the working life, yet focuses more on the working conditions that the social relation and new machines. On a production line, a sliver conveyor system is not necessarily a must to feel that you are actually working or feel alienated. What matters in fact is not the type of the work carried out, but the control relations and the domination that the work includes (Swain, 2019).

According to Eryilmaz and Burgaz (2011), it is possible to mention about various factors that might lead to the alienation of the individuals working for the organization. Employees' being unable to see the outcome of the work

they have produced, the strict and authoritarian structure of the organization, the extreme normativeness or normlessness within the organization, the limitation of the physical facilities and not having the support or consideration by the colleagues in the organization cause the individual to demoralize and the organizational alienation to accelerate. All these factors can be classified under the headings such as bureaucratic structure of the organization, conflicts between the administrators and the workers, organizational communication, lack in participation into decision – making processes, the work stress, and the dominance of the closed organizational climate (Eryılmaz & Burgaz 2011).

Sarros, et. al, (2002) highlighten the fact that the conditions and the structure in the organizations might lead to the existence of the alienation within the organizations by focusing on the significance of the hindrance and limitations of the democratic decision – making processes and central administrative applications that ignore the worker's individual freedom and autonomy and add that work alienation or in this study, organizational alienation could also be influenced by the leadership strategies and implementations as well as the structure and conditions of the organization.

Due to the fact that organizational alienation is a comprehensive concept including various points of view, there is a wide range of definitions regarding the term. Michaels et al. (1988), for instance, identifies organizational alienation as an overall mental situation of exclusion from the institution, factory or work as a result of the thought that working cannot help enabling the employees or the workers to meet their basic requirements within their daily lives. In another identification, the term of work alienation is preferred to organizational alienation and it is emphasized as the level at which a person mentally sees oneself with regard to a certain kind of labour or work (Kanungo, 1982). Additionally, according to Moch (1980), organizational alienation is conceived as the state that indicates the low level of attention and interest of the worker / employer for the work, the insufficient effort within the working period and the fundamental motive towards external conferment. Aiken and Hage (1966) stresses the fact that organizational alienation refers to the state of an individual's letdown about job and improvement related to the job, apart from the dissatisfaction related to the impotence to comply with the necessities and the rules of the job. Organizational alienation is attributed to the dimension in which workers or employers become estranged from the work or the organization they work for, which illustrates the negative perception towards the work or the low degree of commitment to the job or the organization (Hirschfeld & Feild, 2000). In the same vein, Kobasa

et al. (1982) emphasizes the fact that organizational alienation corresponds to an overall, unwilling state of lookout over the environment as regards working that clarifies a low degree of truth within the responsibility or the requirements expected by the work itself.

Kahveci (2015) clarifies that the fact that the goals are common in an organization enables the individuals to become tied to each other and thus the human behaviours increasingly gain more importance in time. Generally, the individuals comprising the organization adapt to the requirements of the organization; however, the problems and unexpected changes encountered within the working system and occurrence of the behavioural alterations pave the way for the existence of a series of organizational problems, the foremost among which is organizational alienation. It is proposed that organizational alienation might result from workers' implementation process of their duties and their relationships between their colleagues and the administrators and the alienation of the workers to their organizations might lead to the disappointment in terms of their career and professional development (Kahveci, 2015). In addition to this, the level of workers' participation in the decision – making processes and the structure of autonomy in the organization are among the primary factors that affect the occurrence of alienation within the organization (Huang, 2006).

The fact that the workers cannot obtain what they expect from their organizations, see themselves as a merely producing thing and suffer oppression by their administrators brings organizational alienation together (Soysal, 1997). With this in mind, Banai and Reisel (2007) define organizational alienation as the situation of worker's psychologically isolation from oneself and the social relationships both in and outside the organization. The occurrence of an authoritarian structure within the organizations, workers' lack of autonomy and creativity opportunities, strict implementation of the rules and standards within the organization, deficiency in the worker participation in the decision – making processes cause the workers to become alienated to their organizations (Olsen, 1976).

As for the outcomes of organizational alienation, Eryılmaz (2010) underlines the emphasis on the fact that the behaviours of the individuals alienating to their organizations adversely shape the process of production or service and the quality of the obtained product or the service and adds that within the educational services, too, one of the basic tools for enabling the social, economical, political, cultural, individual and technological improvement as

the necessity of the modernization, the feeling of teachers' alienation at a high level may result in their exhibiting undesired organizational behaviours such as losing the excitement, joy and motivation for the profession by affecting the success of the students and the contribution to the organization and the profession.

With reference to the occurrence of the alienation in the educational institutions, Thomson (1994) highlights the fact that weakness, isolating oneself from the colleagues, the lack of goal congruence and the limited and inadequate level of professional solidarity might result in teachers' becoming alienated to their schools. In addition to this point of view, Gold and Rotham (1992) indicates that high level of stress and burnout experienced by teachers is also considered as the source of alienation to their organizations. Teachers' self-esteem, opportunities for the participation into decision – making processes, carrying out the roles taken upon in order to meet the goals and targets of the school, chances of autonomous working in the education and teaching activities, qualities such as teachers' having the right to say about decisions of the school administration related to the students, curriculum, programmes and environment are assessed as the primary factors that directly affect the organizational alienation experienced by the teachers (Shadur, et al.,1999). Apart from these factors, the key points such as the restriction of teachers' freedom of thought and action by the legal texts, regulations and documents, lack of appreciation for their labour and efforts, the feeling of loneliness within the social relationships, the insufficiency of educational opportunities and sources and normalization of successful teachers' educational achievements by the school administration might lead to the alienation of the teachers to their institutions as well (Elma, 2003).

Methodology

As for the data collection method, the qualitative study has been carried out at a secondary school in the city of Manisa in Turkey. The views of twelve teachers working at a vocational and technical high school have been asked via a semi – structured interview form, consisting of ten questions, five of which are intended to assess their views on OD and the other five for the OA behaviours. The questions related to OD and OA have been derived from the sub-dimensions of organizational democracy and organizational alienation focused on the studies by Geçkil – Tikici (2013 - OD) and Eryılmaz (2011 - OA).

Table 1 *Study Group*

Participants	Gender	Age	Term Time in the Institution	Professional Seniority	Educational Status
P1	Female	41 - 50	6 years and over	21 years and over	B.A.
P2	Male	41 - 50	3 – 5 years	11 – 20 years	B.A.
P3	Female	51 – 60	6 years and over	21 years and over	B.A.
P4	Female	41 – 50	3 – 5 years	21 years and over	B.A.
P5	Male	31 – 40	6 years and over	11 – 20 years	B.A.
P6	Female	31 – 40	0 – 2 years	6 – 10 years	B.A.
P7	Male	31 – 40	3 – 5 years	11 – 20 years	B.A.
P8	Male	41 - 50	6 years and over	21 years and over	B.A.
P9	Male	31 – 40	0 – 2 years	6 – 10 years	B.A.
P10	Female	30 and below	3 – 5 years	0 – 5 years	B. A.
P11	Female	41 – 50	3 – 5 years	11 – 20 years	M.A.
P12	Male	30 and below	0 – 2 years	0 – 5 years	B.A.

Table 1 shows the demographic variables of the participants of the study.

Data Collection and Assessment

In order to measure the level of the existence of the organizational democracy in an institution, Geçkil and Tikici (2013) have focused on organizational democracy consisting of five specific dimensions, namely, *Participation and Criticism, Transparency, Justice, Equality and Accountability*. In the following paragraphs, the dimensions are to be analyzed through applying for the study by Geçkil (2017). In this study, five questions have been produced for each dimension of organizational democracy and the first part of the semi – structured interview related to the concept of the organizational democracy has been built up. The dimensions related to the study have been assessed in the following paragraphs by underlining the focus by Geçkil (2017).

The first dimension is *Participation – Criticism*. This dimension is especially interrelated to the general concept of the democracy. Considering the modern status of the organizations, it is essential that the workers have a say on

the management of their institutions by taking part in the managerial procedures and criticising the negative operations or decisions taken by the administration.

Transparency is the second dimension, which refers to the information sharing and acting styles that are carried out in a fair, clear and comparable manner by the management and thus enabling the democratic awareness of the ongoing processes within the organization. In the democratic organizations, information is to be shared and the opinions of the workers are to be frequently asked by the management.

The third dimension is *Justice*. In terms of the organizational processes, justice contains the distribution of the gainings, the procedures applied through taking the decisions and the rules and social norms developed by the interaction between the individuals. Justice, in the context of an organization, focuses on the perceptions of the workers in the organization about how fair and righteous they are treated by the management.

Equality is the fourth dimension, pointing out the fact that all the members of the organization, regardless of their status or position, should have the same rights and advantages with regard to the whole organizational procedures. According to this dimension, those who have the same conditions or the qualities should be approached with the equal processes and treatment.

The last dimension is *Accountability*, which refers to rendering an account for the decisions taken, the expenses made and other savings linked to the organization and paying the related individuals to account for all this. Accountability also means an individual or an organization's giving account of what has been done, advocating it and being obliged to this, due to the processes or the actions implemented.

As for the assessment of the organizational alienation at institutions, Eryılmaz (2011) focused on the sub-dimensions of organizational alienation, primarily based upon the studies and the dimensions put forward by Seeman (1959) and the other related research. When the study is analyzed thoroughly, it is seen that there are five specific dimensions, namely, *Weakness*, *Meaningless*, *Normlessness*, *Isolation* and *Self - Estrangement*. In this study, in order to comply with the content of the dimensions, five questions have been produced for each dimension and the second part of the semi – structured interview related to the concept of the organizational alienation has been built up. The dimensions related to the study have been assessed in the following paragraphs by making use of the emphasis by Eryılmaz (2011) based upon the theoretical framework of the research by Seeman (1959).

Weakness, the first dimension of Organizational Alienation, refers to the individual's lack of supervision over the products one produces and the tools one applies for in the process of the production. The phenomenon of weakness is not only an objective concept emphasizing the person's estrangement from the production tools but also a subjective one towards comprehending the individual's mood. Among the main reasons for the emergence of the weakness in the organizational procedures might be the isolation process from the self of the product produced, the inadequacy over the general managerial policies and the insufficiency of the supervision over the working conditions of the employers.

The second dimension, *Meaningless*, is the system – wide situation, which arises from the confliction of the organizational aims with the individual roles and hampers the integration within the organization. In that respect, meaningless is the lack of integration of the individual's truths with the organizational norms. In the case of a complication or uncertainty in the organization, the worker probably has difficulty in how to act, falls into a complex mood and consequently, one completely shies away from the organizational processes.

Normlessness, which is the third dimension, can be identified as the instability of the individual resulting from the downfall of the norms and values or the deprival of goals and principles. In addition, normlessness is considered as the concept expressing the individuals' experiencing the feelings of irregularity, indecisiveness, pessimism and uncertainty in conclusion of the decrease in the dedication to the norms. The feeling that creates the normlessness of the individual might appear in the form of uneasiness, anxiety, aimlessness or lacking the organizational targets.

The fourth dimension is *Isolation*. This dimension emphasizes the individual's avoidance of building a relationship with the physical environment one generally occupies or the other people or minimizing that relationship. The sources of this recession or estrangement might stem from the psychological situation of the individual or the environment. In terms of organizational structure, the workers' recession from the organization and estrangement to the basic expectations and the feeling of not being able to belong to the organization might lead to the isolation as well.

Self–Estrangement, the fifth and the last dimension, refers to the employee's not making one's case in the organization and one's incomprehension of the internal meaning of the work. An individual who is self – estranged to oneself

does not deal with the internal factors of the work but the external ones such as money and security. Individuals who feel strange from themselves or become self – estranged are able to get almost no personal satisfaction with the work or the roles they perform and simply experience the feeling of emptiness in their lives. With regard to the organizational dimension, the worker does not perform one's work willingly and considers the work as a tedious effort. As a result of the lack of the connection between what the worker intends to perform and achieve and the work one carries out, one cannot experience the feeling of happiness arising from the success and self – estrangement occurs in time.

In the process of the data collection stage, the participants were guided by giving clear and brief explanations about the overall context and content of the questions in the semi – structured interview form so that they could achieve responding the questions. In view of the fact that the pandemic conditions have been ongoing for a long time, the forms were sent to the participants via e – mails and the responses were obtained in the same way. Later on, without changing the main emphasis underlined within the responses of the participants, the responses were collected and organized in a systematical way so as to make up the relevant tables indicating the opinions of the participants about Organizational Democracy and Organizational Alienation.

To build up the semi – structured interview form, the questions have been produced in harmony with the sub - dimensions of organizational democracy and organizational alienation. Henceforth, the questions having been asked are as follows:

Table 2 *The Classification of the Questions Asked to the Participants*

Organizational democracy		Organizational alienation	
<i>Participation Criticism</i>	Do you experience the fact that the processes of decision – making at your school enable teachers’ active participation and teachers are provided with the opportunity to criticize about decisions taken or practices by the school administrators? Please exemplify your answer.	<i>Weakness</i>	In terms of topics such as your communication with students, your contribution to them and your classroom management, your power of keeping the wolves at bay, your position about obeying the rules unconditionally, your views’ being adopted, being adequately supported by your colleagues, your being exploited by them or not, your will and excitement for work; how do you experience yourself? Please exemplify your answer.
<i>Transparency</i>	In terms of administrative and educational functioning and performance assessments of teachers; do you experience the fact that it is acted in accordance with the principle of clarity and transparency, required elucidating about important news is periodically provided and communication is not in a hierarchical structure but is based on two - sided model of exchanging opinions? Please exemplify your answer.	<i>Meaningless</i>	If you consider in terms of your teaching, how do you experience yourself about whether you perceive yourself as performing a meaningless duty, useless and featherweight, tired of teaching subjects that are useless within real life, finding work – related meetings meaningless, a robot programmed for giving courses and the efforts of your idealist colleagues as redundant; and as for the teaching profession itself, about whether you are a person who considers teaching is a boring and just an income – generating source and a meaningless effort? Please exemplify your answer.
<i>Justice</i>	In your school, do you experience the fact that reward system, distribution of tasks and criteria of assessment are carried out in accordance with the factors of justice, merit and standardization, besides, the views of teachers are also effective in determining the success levels of administrators? Please exemplify your answer.	<i>Normlessness</i>	In your school, do you experience the fact that the rules are not equally applied to all teachers and these rules hinder your creativity; thus, you employ the rules you have established yourself, ignoring your behaviours’ compliance with the laws and the rules? Please exemplify your answer.

<i>Equality</i>	<p>Do you experience the fact that discrimination or favouritism among the personnel is not made by attaching importance to factors such as gender, language, religion, race, political views, and ethos; thus, your school is a democratic organization where the contributions of the teachers to the students and the school, rather than such factors mentioned above, are prioritised? Please exemplify your answer.</p>	<i>Isolation</i>	<p>In your school, in view of feeling the sense of exclusion, considering relationships hollow – hearted and finding your circle of friends boring, do you experience the fact that you try not to gather with other teachers / administrators and not to do activities with them outside the classroom / school? Please exemplify your answer.</p>
<i>Accountability</i>	<p>In the context of works and practices carried out; do you experience the fact that your school is an organization, the accountability culture of which is advanced, and where the policies and procedures can always be interrogable and the staff at every rank, regardless of their position, are accountable? Please exemplify your answer.</p>	<i>Self – Estrangement</i>	<p>Relevant to the fact that you feel the sense of emptiness in your life and assess yourself as an individual who does not contribute to the society; do you experience the feeling of going away from the school as soon as you have completed your classes or duties? Please exemplify your answer.</p>

The classification of the questions asked that are required for collecting data in categories of the sub-dimensions of organizational democracy and organizational alienation can be seen in Table 2.

Results

The random selected of some responses to the questions by the participants have been classified and categorized in the table Table 3 as follows:

Table 3 *The Categorization of Participants' Responses*

Organizational democracy		Organizational alienation	
<i>Participation – Criticism</i>	P1 says “The decision – making processes are mostly carried out by the principal and vice principals. To illustrate, an offer by the majority of the teachers related to the technique of the implementation of the exams was ignored by the school administration”.	<i>Weakness</i>	P6 says “I think that my communication with students is at a good level. Due to the appointment to another school, I am a newcomer in the institution I am currently working for. I get the adequate support by the majority of my colleagues. Nevertheless, I don't think that my will and excitement for working in the school is at a good level”.
<i>Transparency</i>	P2 says “The principle of clarity and transparency with regard to the administrative and educational procedures and the assessment of teachers' performance is not attached importance. In addition, organizational communication is in a hierarchical structure and not based on two - sided model of exchanging opinions”.	<i>Meaningless</i>	P7 says “I have never perceived myself as performing a meaningless duty, useless and featherweight; tired of teaching subjects that are useless within real life; finding work – related meetings meaningless; a robot programmed for giving courses; and the efforts of my idealist colleagues as redundant. I have always been a teacher who does his work with persistent pleasure and loves all his students”.
<i>Justice</i>	P3 says “I do not think that reward system, distribution of tasks and criteria of assessment are carried out in accordance with the factors of justice, merit and standardization. For instance, certificates of achievement are merely given to certain persons, the other teachers are not even informed, we later hear about that”.	<i>Normlessness</i>	P8 says “I think that, though there are exceptions, the rules are equally applied to all teachers and teachers are fairly treated. I can never stand normlessness and my colleagues and students who behave by neglecting the rules. I cannot ignore their wrong behaviour and try to explain that the right thing is not that”.

<i>Equality</i>	P4 says “I do not think that my school is a democratic organization. Though not overt, a gendered structure dominates the school. Specifically, the dominating view is that the women in the administrative level cannot implement the work as do the men. The role of the women in our society (mother, housewife, wife, etc.) is seen as a handicap in the work life”.	<i>Isolation</i>	P9 says “In my school, I do not experience feeling the sense of exclusion and do not consider relationships hollow – hearted. Due to the fact that the number of teachers at my school is high, it is impossible to have intimate relationships with all the teachers at school”.
<i>Accountability</i>	P5 says “In the context of works and practices carried out, inquiring cannot be done. In that respect, I don’t think that my school is an organization, the accountability culture of which is advanced.	<i>Self-Estrangement</i>	P10 says “I do not feel the sense of emptiness in my life and assess myself as an individual who does not contribute to the society. I feel the desire for going home without experiencing the feeling of going away from the school immediately. I leave school on some days after I have a talk with my colleagues and occasionally after I assess the day with my department group”.

In the dimensions of Organizational Democracy, given as Participation and Criticism, Transparency, Justice, Equality and Accountability, the responses lead us to make some conclusions with regard to whether the implementations, policies or actions carried out by the school administration are in harmony with the democratic qualities of educational management processes. To hypostatize the situation, the expressions of the participants such as “Reward system, distribution of tasks and criteria of assessment are carried out in accordance with the factors of justice, merit and standardization” (P3 for Justice), “The decision – making processes are mostly carried out by the principal and vice principals” (P1 for Participation and Criticism), “I don’t think that my school is an organization, the accountability culture of which is advanced.” (P5 for Accountability), “I do not think that my school is a democratic organization. Though not overt, a gendered structure dominates the school.”(P4 for Equality),

“Organizational communication is in a hierarchical structure and not based on two - sided model of exchanging opinions.” (P2 for Transparency) can be given as examples to illustrate the structure of the organization in terms of democratic dimensions.

In spite of the fact that there are just five participants’ views indicated in the related table above, the views of the rest of the participants are almost alike regarding the Organizational Democracy at the school. To illustrate, the following sentences can be given as examples:

P8 says “They take our opinions about the topics that they are not specialized at; however, they go their own way in the last stage. To give a simple example, they ask about the compulsory needs of the school but they only compensate the things they determine by themselves.” (Participation – Criticism)

P9 says “No, I don’t think that reward system, distribution of tasks and criteria of assessment are carried out in accordance with the factors of justice, merit and standardization. The reward system is completely in the hands of the union, and the managers such as departmental chiefs and school principals. Consequently, this leads to the disregarding of the success realized. (Justice)

P7 says “Unfortunately, so as to work as a manager, you have to adopt a certain political view and philosophy of life; therefore, I don’t think that there is a democratic structure in the school. Not merely in the Ministry of National Education, in no level of any official institutions exists an organization that -is focused on merit, professional knowledge and performance. For instance, 90 % of the current administrators of educational institutions are selected among the individuals who are the members of the same union. (Equality)

The responses given in the table and the sentences above indicate the fact that the school is conceived by the participants as an institution that lacks democratic implementations within the managerial procedures in terms of the dimensions of organizational democracy. Specifically, the majority of the participants have focused on the fact that the requirements as a democratic organization in terms of the dimensions as Participation – Criticism, Transparency, Equality, Justice and Accountability are distinctly disregarded by the school administration. In that respect, it is clear that the participants are probably displeased with the current situation of their institutions even though they cannot reject the implementations or policies of the management due to the possible pressure they feel within the educational processes at school. Bearing this in mind, it would be appropriate to mention about the fact that the general educational management system in the country is basically hierarchical and strictly framed with the formal structure and

network of communication, the educational administration at this school might also get affected by this, which results in the insufficiency of the democratic implementations at the institution.

As for the Organizational Alienation, it can be concluded that, based upon the responses given by the participants as illustrated in the table above, the views of the teachers are not in the same way as their views related to the Organizational Democracy. That is to say, despite the fact there is a minority of the participants that utter they feel alienated in terms of some dimensions of the Organizational Alienation, the majority of the participants emphasize that their conceptions of the alienation within the institution they work for are mostly not in the negative way considering the dimensions of the Organizational Alienation given as Weakness, Meaningless, Normlessness, Isolation and Self – Estrangement. To clarify this, the expressions of the participants such as “I do not feel the sense of emptiness in my life and assess myself as an individual who does not contribute to the society. I feel the desire for going home without experiencing the feeling of going away from the school immediately. I leave school on some days after I have a talk with my colleagues and occasionally after I assess the day with my department group” (P10 for Self – Estrangement), “I have never perceived myself as performing a meaningless duty, useless and featherweight; tired of teaching subjects that are useless within real life; finding work – related meetings meaningless; a robot programmed for giving courses; and the efforts of my idealist colleagues as redundant. I have always been a teacher who does his work with persistent pleasure and loves all his students” (P7 for Meaningless), “In my school, I do not experience feeling the sense of exclusion and do not consider relationships hollow – hearted. Due to the fact that the number of teachers at my school is high, it is impossible to have intimate relationships with all the teachers at school” (P9 for Isolation), “I think that my communication with students is at a good level. Due to the appointment to another school, I am a newcomer in the institution I am currently working for. I get the adequate support by the majority of my colleagues. Nevertheless, I don’t think that my will and excitement for working in the school is at a good level”. (P6 for Weakness), “I think that, though there are exceptions, the rules are equally applied to all teachers and teachers are fairly treated. I can never stand normlessness and my colleagues and students who behave by neglecting the rules. I cannot ignore their wrong behaviour and try to explain that the right thing is not that” (P8 for Normlessness) can be given as examples to illustrate the basic opinions of the participants about the alienation related to the organization, namely Organizational Alienation.

When the opinions of the rest of the participants are analyzed, though some minor exceptions, it is again observed that the result related to the Organizational Alienation at the institution is nearly the same. To make this clear, the following sentences would be appropriate:

No, I don't feel the sense of exclusion at my school. Especially, the fact that I have a good relationship with my colleagues is what makes me pleased. I sustain my communication with most of my colleagues outside the school, too. I am so fortunate that I have a group of friends whom we can share our happiness and sorrow with. In that respect, I think both the school management and the teachers are participative and sincere. (P1 for Isolation)

In my school, I haven't observed that the rules are not equally applied to all teachers. Consequently, my behaviours have not been at odds with the laws and the rules. (P5 for Normlessness)

I don't feel the sense of emptiness in my life and assess myself as an individual who does not contribute to the society. I am full – day at school since my course hours are so many (36 – 38 hours per week). For that reason, I cannot socialize with my colleagues. I don't have a desire such as playing hooky. If only I had idle classes, I could spend time with my colleagues in our beautiful school garden.

As can be concluded from the responses within the table and the sentences above, it is explicitly seen that Organizational Alienation conceived by the participants is not at a high level; rather, it is approximately at a middle level or probably low even though they consider the implementations of the school management as lacking the democratic dimensions. That is, the majority of the teachers do not feel alienated regarding the dimensions of the Organizational Alienation. Still, it is necessary to stress the fact that related to the certain dimensions, some participants underline their alienation in connection with the organizational behaviours, attitudes and policies of the management. In order to exemplify this, the following sentences would be appropriate:

“I don't think that my will and excitement for working in the school is at a good level” (P6 for Weakness)

I don't think that the rules are equally applied to all the teachers. As I have just said, I take my decisions in accordance with the situation of the classroom, not with the rules. Of course, I sometimes feel that I am restricted. For instance, in my former school, I occasionally used to cover my courses in the garden in fine weather; however, it is forbidden in here. (P4 for Normlessness)

It is true that I sometimes have these ideas. Unfortunately, what lies in this are considerably the wrong educational policies that have held on for years. The administrators that trivialize teachers and the policies that ignore education make our profession meaningless. (P1 for Meaningless)

When the modelling of the study and obtained results are meticulously analyzed, the predicted correlation between Organizational Democracy and Organizational Alienation has not well – suited with that of the post – analysis process. Yet, it does not mean that there is no significant correlation between the two variables. The conceptions of the participants about the existence are in the negative way in terms of the dimensions of the Organizational Democracy and although it is not at a high level, especially for some certain dimensions of the Organizational Alienation such as Weakness, Normlessness and Meaningless, the participants express the fact that they experience the feeling of alienation resulting from the structure of the organization that is managed through a low level of democratic mentality.

Conclusion and Recommendations

When the responses of the participants of the semi – structured interview form focusing on the views of the teachers at a secondary school related to the occurrence of the Organizational Democracy in their institutions and their Organizational Alienation behaviours in accordance with that have been meticulously analyzed, it is observed that the teachers’ views regarding Organizational Democracy in almost all the dimensions are in the negative way as the related table above also indicates the situation.

As the present study and the wide range of literature on Organizational Democracy indicate, the existence of the democratic implementations of the managerial processes affects the workers in a positive way. In the context of educational institutions, the situation is the same as well. That is, the more a school management applies the democracy in their policies and decision – making stages, the more teachers feel themselves happy, enthusiastic and productive in contributing to their students, schools and thus the society in the long term. In that respect, the level of the Organizational Democracy at schools conceived by the teachers might likely affect the alienation levels of teachers towards their institutions.

In conclusion, in terms of the recommendations for the readers aiming to improve themselves on the topic, the researchers intending to study on the similar

context and the implementers being involved in the educational management, the following might be considerable:

If the universe and sample of the study is broadened and the study is carried out in a wide range of various types of schools, the results will probably be in more harmony with the conceptual framework indicated in this study.

When the research design is based upon the quantitative technique focusing on the direct usage of the sub-dimensions of organizational democracy and organizational alienation, the results might well – fit with the predicted correlation of the two variables.

Enabling the participants to become more knowledgeable about the context and the content of the study that will be carried out by presenting the main information about the sub-dimensions of the concepts might be so effective in obtaining objective and trustworthy results.

The school management, namely school principals and vice principals at school, might benefit from the present study in that they might apply the content of the organizational democracy, especially all the five dimensions, and create a more democratic school environment where teachers are possibly more willing to do their best both for the students and the organization itself; consequently, their alienation to the institution might probably become lessened.

As for the general framework of the educational system, the policies, laws and the rules might be stretched positively for the sake of improving democratic conditions at schools in terms of educational management and teaching – learning processes, which might also enable teachers to feel themselves more motivated and prolific within carrying out their professions.

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CHAPTER VI

TEACHERS' ATTITUDES TOWARDS ONLINE EDUCATION AND A SCALE STUDY

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1. Introduction

The importance that societies attach to education is directly proportional to their level of development. This reveals that education is crucial for future generations. A person can learn even the simplest life conditions to sustain life through education. Education, which helps the development of personality and equips people with necessary information while preparing them for adult life (Tezcan, 1985), is among the priorities of state policies for raising future generations. Education is the process of gaining desired behaviors by adjusting one's behaviors with certain environmental factors (Sönmez, 2011). The main point of the education effort of people is to help children and young people adapt to society in a healthy way (Varış, 1988). As it is seen, education exists to give people specific abilities. The output of education is learning. Learning is the key to success today (Davis & Davis, 2001). Therefore, learning in education is among the aims of education.

The dynamics in daily life are also changing, thanks to the development of technology day by day and the speed of this development increasing day by day. Apart from traditional face-to-face education, distance education, a new education system, is one of these outcomes. According to Kaya (2002), distance education is a system in which the student and the teacher are separated from each other from time to time, the learning tools are planned and prepared, and the student is supported, the teacher and the student come together with

the communication tools and benefit from the audio and video technology. Uşun (2006) defines distance education program as “the program prepared by educational institutions and the work carried out to help students develop”.

According to Alkan (1996), distance education has some conceptual foundations. These;

“Creating new opportunities, providing business and education cooperation, democratizing the process, providing lifelong education, being oriented towards individual facts, increasing the efficiency of benefiting from educational institutions, integration of technology and education, oriented towards individual, society and technology needs, 3-d integration, reaching large masses, individual and mass education integrity, education desire, financial opportunity balance (S.XIX).

Distance education, which has been in our lives for many years in education, takes a different way with technology. However, distance education should not be considered only due to technology. Distance education is a teaching system that facilitates teachers’ pedagogical interaction to students (Moore & Anderson, 2003). When distance education is combined with technology to solve the problems that arise in education systems, it may become indispensable for many institutions in the coming years.

The term, which dates back to the 1700s and was officially used at the University of Wisconsin in 1982 as “distance education” (Verduin & Clark, 1994), is widely known today. Especially with the closure of schools during the Covid 19 process, research has increased about distance education, which is used as compulsory (Demirtaş, 2021). Apart from this, as a result of the search for solutions to educational problems, especially in this regard, new trends have emerged. As in all other countries, The Turkish education system has problems as well, such as physical structure, equipment, quality teachers, quality education, number of students, school attendance, rapid population growth, families’ indifference to education, education according to talents, education according to knowledge level, modern methods, permanence. It is possible to solve these problems with the distance education system (İşman, 2011).

England is the country with the leading initiatives in distance education in Europe. Afterward, the organizations established in Germany, Russia, and France in 1856 (Ecole Universelle par Correspondance) in 1907 and launched

in 1939 (Centre National d'Enseignement par Correspondance) implemented the distance education system (Alkan, 1996). Moreover, countries such as Australia, New Zealand, Canada, India, Israel, Italy, Poland, and Spain are the leading countries that successfully implement distance education systems.

In Turkey, despite the first steps taken for distance education in 1927, it entered the education system in the form of letter teaching in 1960 (Arar & Çakmakçı, 1999). Anadolu University, an essential institution in online education in Turkey, started education with 29,274 students in 1982 (Demiray, Candemir, & İnceelli, 2002).

The online education system, which is used in every way, from personal development to artistic education, may seem like it is not possible to replace traditional education today. However, if the two systems are used as hybrid systems in a planned and regular way, the problems of education and the drawbacks of online education can be eliminated.

1.1. Pandemic conditions in education

In 2019, schools providing face-to-face education had to close due to a worldwide pandemic. States have used distance education systems by structuring the education systems that shape their future with their emergency action plans. Covid 19 has spread so quickly that the emergency shutdowns have damaged the education system. Although distance education has been known since the 1700s, due to the disease that caught many institutions unprepared, it created gaps in the transition process in the education system at the first moment. Despite all these adverse developments, opinions have emerged that the distance education system should be included in the traditional education system. Thus, education planners placed distance education within their systems and aimed to use the conventional education system to solve the problems in the future.

In the research, teachers' views on distance education used in education systems were evaluated within the scope of "attitude towards online education". During the pandemic period, students, along with teachers, had to utilize distance education. Thus, questions were asked to the teachers about this system, which everyone is exposed to in some way, with the help of the items in the components created within the scope of "attitude towards online education" technical issues, cognitive attitude, affective attitude, psychomotor attitude, and classroom management. Thus, it is aimed to design a tool to measure teachers' attitudes towards distance education.

1.2. Purpose

The research aims to develop a tool to measure “the attitude of teachers towards online education”. In this context, the obtained data were analyzed with statistical programs, and the findings were evaluated.

1.3. Significance

The scale of “teachers’ attitude towards online education” developed in the research can be used as a tool for researchers to work in this field. In addition, it is anticipated that this research can contribute to the next-scale development processes. These reasons make the research significant.

2. Method

In this section of the research, there is information about the research method, statistical methods used, the introduction of the study group, data collection, and analyzing process. Since the research is a study for scale development, it was conducted with a quantitative method.

2.1. Research Model

In this study, conducted using the survey method, teachers were asked their opinions on online education. The survey model is the model in which the views of the participants on a subject are evaluated (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2016). In the research, the questions created after the literature review were structured with the help of a language expert. The scale was converted into 5-point Likert-type survey questions with online forms, was made ready to be used in both Turkish and English.

2.2. Working Group

In the research, the items created as a result of the literature review were sent to the teacher groups by e-mail. The working group of the research consists of 176 teachers who volunteered to participate in the research with the help of e-mails sent to the teacher groups.

Table 1. Branches of Working Group
The working group branches are shown above. As can be seen, this group consists of teachers from various departments. In addition to this information, the group’s average age is 38.2,

and the youngest participant is 25, and the oldest participant is 59 years old. Participants consist of teachers working in different provinces of Turkey. All of the teachers participating in the research have experienced online education.

2.3. Data collection

After the literature review, the 25-item 5-point Likert-type questionnaire was sent to the teacher forums via e-mail. The data of the revised scale to be applied via online forms were collected both by e-mail and data from forums. Technical support was provided to the teachers, who participated in the research voluntarily, on issues such as filling out and collecting the questionnaire by the researcher during data collection.

2.4. Analyzing Process

In the research, the items that created the attitude towards online education were designed after the literature review. The items designed using the literature review were made as “cognitive attitude”, “affective attitude”, “psychomotor attitude”. In addition to these topics, which are the main components of the concept of attitude, technical issues and classroom management were also added to the research during the scale design phase. After the written items were checked with the help of a language expert, they were sent to the volunteer participants in the teacher forums by e-mail. As a result of the voluntary participants filling out the questionnaire, the data were entered into the statistics program to be analyzed. The scale, which was designed as 25 items with five factors, was reduced to 18 items after the exploratory factor analysis (EFA) and reliability test (Cronbach's Alpha) were performed through the statistical program. The usability of 18 items as a scale is evaluated in the study. The scale items, which was designed in Turkish and English, were made ready for use in both languages.

3. Findings and Interpretation

In this section, the data collected in the research were analyzed and evaluated to develop the scale.

3.1. Exploratory factor analysis findings

According to Child (Child, 1970), factor analysis simplifies interrelated measures. Throughout human history, factor analysis has been tried to make

sense of its events. Factor analysis is a statistical test that provides a small and identifiable way to obtain many variables. This test, which consists of many variables, it is aimed to find a small number of factors (Büyüköztürk, 2002). In other words, in factor analysis, the data is handled in terms of similarity to each other and a procedure is made from the sum of the data. In this part of the research, the data obtained from the questions asked to the participants about online education with 5-point Likert type questions were examined and the findings were evaluated.

The suitability of the sample size was tested with the Kaiser-Mayer-Olkin (KMO) value. According to Tabachnic and Fidell (2013), data with a KMO value of 0.60 and above and a significant Bartlett test ($p < 0.05$) are considered statistically sufficient in terms of sample size (Tabachnick & Fidell, 2006).

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.753
Bartlett's Test of Sphericity	App. Chi-Square	666.186
	Df	153
	sig.	0.000

According to the table above, the KMO value was calculated as 0.753. In the Bartlett test, it was measured as $p=0.00$. As a result of these findings, the sample size of the study is sufficient since the KMO value is high. The p-value is significant since the Chi-Square (χ^2) value of the Bartlett test, which is the test in which the relationship between the variables is analyzed based on correlation (Büyüköztürk, 2016), was calculated as 666,186 and $p=0.00$.

Communalities values are shown in the table below. In this table, it is important to explain the variance of each item in common factors together. The lowest value of each item in the Extraction column should be 0.10 (Seçer, 2018).

Table 3. Communalities Table

Communalities		
	Initials	Extraction
Var 1	1.000	0.665
Var 2	1.000	0.590
Var 3	1.000	0.585
Var 4	1.000	0.519
Var 6	1.000	0.416
Var 7	1.000	0.587
Var 9	1.000	0.708
Var 10	1.000	0.680
Var 12	1.000	0.831
Var 14	1.000	0.824
Var 16	1.000	0.733
Var 17	1.000	0.840
Var 18	1.000	0.649
Var 19	1.000	0.555
Var 20	1.000	0.642
Var 21	1.000	0.686
Var 23	1.000	0.720
Var 25	1.000	0.637

Extraction Method: Principal Component Analysis.

According to the data obtained, the 6th item, which is the lowest value, is 0.416, and the scale is completely compatible, including the 6th item.

After this stage, the “total variance explained” table should be examined to reveal the factor structure.

Table 4. Total Variance Explained

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sum of Squared Loadings			Rotation sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.544	30.798	30.798	5.544	30.798	30.798	3.891
2	1.934	10.747	41.545	1.934	10.747	41.545	2.242
3	1.631	9.063	50.609	1.631	9.063	50.609	3.058
4	1.538	8.547	59.156	1.538	8.547	59.156	3.105
5	1.218	6.755	65.922	1.218	6.755	65.922	2.619

Extraction Method: Principal Component Analysis

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance

The test findings using the “Principal component analysis” method are shown above. As the table is examined, it is seen that it has a 5-dimensional structure with 1% eigenvalue and 5% variance, which explains 65.922% of the total variance. Having a total variance of over 50% is an important criterion for factor analysis (Yaşlıoğlu, 2017). Therefore, the total variance findings of the study represent a large part of the total variable variance.

It is appropriate to use the direct oblimin method for the scale consisting of related items (Crawford, 1975).

Since the items used in the research measure the attitude towards online education, the “Direct oblimin” method was used. The pattern matrix table is given below to examine the factor structure. For item validity, the correlation value of the items should be above 0.30 (Aslan & Kan, 2020). The factor load in more than one dimension, which has a total load value of 0.30 and above, must be at least 0.100 difference.

Table 5. Pattern Matrix

	Pattern Matrix ^a				
	1	2	3	4	5
Var 12	0.935				
Var 9	0.805				
Var 14	0.759				
Var 16	0.714				
Var 1		0.820			
Var 2		0.698			
Var 4		0.631			
Var 23			-0.811		
Var 21			-0.698		
Var 25	0.324		-0.593		
Var 17			-0.570		
Var 20				-0.841	
Var 18				-0.823	
Var 10				-0.740	
Var 19					0.785
Var 3					0.716
Var 7					0.682
Var 6					0.303

Extraction Method: Principal Component Analysis

Rotation Method: Oblimin with Kaiser Normalization

a. Rotation converged in 17 iterations.

In the research, the data were tested using the principal component analysis method. According to the findings, only the 6th item has a total load value of 0.303, which is an acceptable figure. It was observed that the remaining 17 items had load values ranging from at least 0.570 to 0.935. Thus, the 5-factor structure that emerged in the Total variance explained table was once again seen in detail in the pattern matrix table.

As a result of the data obtained, the 5-factor structure emerged as “*Attitude towards technical issues*”, “*Affective attitude towards online education*”, “*cognitive attitude towards online education*”, “*psychomotor attitude of online education*”, “*classroom management*”. This structure is shown below.

Table 6. First Factor “Component Technical Issues”

1	Internet access in-country conditions are sufficient for online education.
2	Institutional infrastructure provides convenience in the course of online education.
4	Institution infrastructure is insufficient for online education

The table above shows the items collected in the “technical issues” factor with statistical calculations. Three items are gathered under this title. 2 items are positive and 1 item is negative. Positive items are shown in the light, while negative items are in dark.

Table 7. Second Factor “Affective Attitude Towards Online Education”

30	The idea of doing time management in online education makes me feel bad
20	Even the idea of making plans for online education makes me nervous.
15	I believe that it is difficult to make a lesson plan in online education.
16	Making plans and programs in online education makes me nervous.

The table above shows the items collected in the “Affective attitude towards online education” factor, which was made via statistical calculations. 4 items are gathered under this title. Items shown in light color are positive items, and items shown in dark are negative ones.

Table 8. Third Factor “Cognitive Attitude Towards Online Education”

19	I believe that online education should be put in the traditional educational system even if pandemic conditions completely are removed from daily life.
22	When there is face-to-face education, online education should be removed immediately
14	If I could, I would remove online education from the program.

The table above shows the items collected in the “cognitive attitude towards online education” factor, which was made via statistical calculations. Three items are gathered under this title. 2 items are negative and 1 item is positive. Positive item is shown in the light, while negative items are in dark color.

Table 9. Fourth Factor “Psychomotor Attitude Of Online Education”

26	I can easily reach other teachers of the student in online education
3	The tools I use in online education increase familiarity with other technological tools.
6	I interact easily with the student in online education
7	I find it difficult to use resources in online education

The table above shows the items collected in the “ psychomotor attitude of online education “ factor, which was made via statistical calculations. 4 items are gathered under this title. All 4 of the items in this factor are positive items.

Table 10. Fifth Factor “Classroom Management”

28	In online education, students reduce the effectiveness of the lesson among themselves.
32	I can easily regulate the behavior of students in online education.
33	It is not possible to get behaviorally positive results in online education.
36	Behavior control of students is difficult in online education

The table above shows the items collected in the “classroom management” factor, which was made via statistical calculations. 4 items are gathered under this title. 1 item is positive and 3 items are negative. Positive items are shown in the light, while negative items are in dark color.

3.2. Reliability values analysis findings

The 5-point Likert-type items that make up the personality, interest, and attitude scales can be used as a reliability determination method with the According to George & Mallery (George & Mallery, 2003) values above 0.6 are acceptable. The closer this value is to 0, the lower the reliability, while the closer it is to 1, the higher the reliability. Below are the Cronbach alpha findings of the teachers' attitude scale towards online education.

Table 11. Reliability Analysis

Component Number	Component Name	Variables	N	Cronbach's Alpha
1	Technical Issues	1	176	0.623
		2		
		4		
2	Affective Attitude Towards Online Education	15	176	0.856
		16		
		20		
		30		
3	Cognitive Attitude Towards Online Education	14	176	0.839
		19		
		22		
4	Psychomotor Attitude of Online Education	3	176	0.647
		6		
		7		
		26		
5	Classroom Management	28	176	0,762
		32		
		33		
		36		
Total	Teachers' Attitudes Towards Online Education	18	176	0.862

The table above shows the component reliability values and the total reliability values of the scale. “Technical issues” and “Psychomotor attitude components” were measured as 0.623 and 0.647, respectively. According to (George & Mallery, 2003), values higher than 0.6 are acceptable numbers. Classroom Management (Cr Alpha=0.762) component has a moderate reliability coefficient. Cognitive Attitude Towards Online Education (Cronbach Alpha=0.839), Affective Attitude Towards Online Education (cr alpha 0.856) values have high reliability. The total Cronbach Alpha value of the scale (Cronbach Alpha= 0.862) has high reliability.

4. Discussion and Conclusion

A 25-item scale was created to measure “teachers’ attitudes towards online education”. As a result of the analyzes made, 7 items were removed from the scale in the analysis regarding the scope and validity of the scale, the remaining 18 items and the scale consisting of a 5-factor structure were created in a 5-point Likert type.

After the literature review in the research, the 25 items created were reduced to 18 items due to the necessity seen in the factor analysis, and the remaining items were evaluated and analyzed. KMO and Bartlett tests were performed with the statistical program, and the KMO value was measured as 0.753, while the Chi-square (X^2) value was measured as 666,186 with the Bartlett test at a 0.00 significance level. It was concluded that the scale was compatible because the number of variances in the common factors was the lowest 0.416.

It was concluded that it represented a large part of the total variance, with a 5-factor structure explaining 65.922% of the total variance. According to the results obtained in the pattern matrix table in the rotation process performed with direct oblimin, it was observed that 17 items had a load of 0.570 and 0.935 at the most. Article 6, with a load value of 0.30, is at the minimum required limit and it has been concluded that it is sufficient.

As a result of the analysis, a 5-factor structure was formed as “Attitude towards technical issues”, “Affective attitude towards online education”, “cognitive attitude towards online education”, “psychic attitude of online education”, “classroom management”. The items in each factor were associated with the factors through the analyses.

The final test was the reliability test. Values calculated with Cronbach’s Alpha coefficient; Component 1 has acceptable reliability with values of 0.623 and Component 4 of 0.647. It was concluded that while the 5th component had medium reliability with 0.762, the 3rd component had high-reliability values with 0.839, and the 2nd component with 0.856. In the reliability test performed by adding all the scale items, it was concluded that it had a high-reliability value of 0.862.

When the findings and results of the scale are evaluated in general, the scale of “teachers’ attitude towards online education” is statistically sufficient in terms of usability. The scale is an easy tool to use and analyze, as it is made suitable for face-to-face and collecting online results by sending forms via e-mail. This tool, which can be easily used by any researcher who aims to examine teachers’ attitudes towards online education and other variables, has been designed with

the QR code system, thus paving the way for easy integration into subsequent research. The scale was prepared in 2 different languages, both Turkish and English. The point to be considered in using the scale is to fill in the positive and negative questions carefully and mark the answers.

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CHAPTER VII

OPINIONS OF THE 2ND-YEAR UNDERGRADUATE STUDENTS OF THE FACULTY OF EDUCATION ON COOPERATIVE LEARNING

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1. Introduction

Learning can be defined as cultural changes that occur because of biochemical processes in the brain. In the teaching-learning process, when methods and techniques that enable students to participate in the lesson are included, students learn more easily and quickly, remember and enjoy their work. Teaching-learning methods, techniques and tactics related to learning that enables students to participate in the lesson actively in an educational environment have been suggested (Sönmez, 2012). They tried explaining learning. One of them is cooperative learning. Collaborative learning is a method that consists of small groups that enable students to learn at a higher level, increase their sense of responsibility, develop their social skills, and transfer information to their friends by working together (Slavin, 1988; Siegel, 2005).

According to Johnson and Johnson (2009), cooperative learning is defined as “the instructional use of small groups in which students work together to maximize their own and each other’s learning.” With this method, students try learning a subject by working together to solve a problem and fulfill a task (Demirel, 2021). It is a teaching method in which each group member is responsible for the learning of other members, and the group is rewarded, not

the individual, because of the evaluation, and all students are motivated to do their best (Slavin, 1980; Senemoğlu, 2018; Sonthara & Vanna, 2009). It has been revealed that collaboration improves especially low-ability students' problem-solving and high-level learning skills more than learning environments where students compete with each other (Slavin, 1990).

In cooperative learning, the teacher is the guide. In this process, it is responsible for the initiation and continuity of cooperative learning, observing the learning groups and evaluating their effective work and learning process (Johnson, Johnson, & Smith, 2007). This learning puts the student in the center and ensures active participation of the student (Johnson & Johnson, 2009; Gümüş & Buluş, 2007). It has been shown that this learning is effective in the cognitive and affective learning processes (Açıkgöz, 1992).

Cooperative learning is based on democratic and scientific work. Students can be divided into groups of two or up to six people. Each student in the group should be given at least one learning task. When creating groups, those who are interested in the subject and those who want to work together can be brought together. This is a process that must be followed in cooperative learning. This process can work as follows in a group investigation:

Determining the topic: Topics related to the target behavior should be determined by the teacher and the groups should be allowed to choose the topics they are interested in.

Cooperative planning: Students and teachers should work together to plan the sub-titles, objectives, tasks of each student, and specifically their learning processes, which they determined in the first step.

Getting started: Students should work on a plan very broadly; He/she should find and read the resources related to the problem in the school and outside the school, in the environment, and interview with the relevant people. The teacher should monitor their work closely and help them whenever they want.

Analysis and synthesis: Students should first analyze and evaluate the information they have obtained; then they should assimilate and combine the relevant and necessary information and organize it to present to the class. All members of the group must be actively involved in this work.

Presenting information to the class: Students should present their work to the class individually or together in a plan under the teacher's supervision.

Evaluation: Each student and group participating in the study should be evaluated by the teacher (Shachar & Sharan, 1994; Arends, 2012; Sönmez, 2012).

The following results may occur in a cooperative learning environment:

1. A competitive learning environment, where some win and others lose. In this environment, who might be the best.
2. An individualistic learning environment in which everyone works to achieve his/her own purpose without taking care of others.
3. A cooperative learning environment where the group either wins or loses together and requires working together for common goals (Johnson & Johnson, 2009).

In this context, many different definitions of cooperative learning can be used. It can be considered a student-centered learning method that works together in small groups to achieve a goal, helps each other, enables each other to learn, and can achieve motivated learning at the highest level. (Açıkgöz, 1992; Johnson, & Johnson, 2009; Slavin, 1990). The group should be heterogeneous and the groups should be homogeneous. The number of students in the group may vary by considering various variables. However, an average of 3–5 people is seen as the ideal number (Yeşilyurt, 2019). Here, it may be necessary to use original, alternative and multiple assessment methods in cooperative learning (Yurdabakan & Cihanoğlu, 2010).

Given the above qualities, dividing the class into several groups or doing cluster work does not mean collaborative teaching. In collaborative group work, students must devote their knowledge, skills, effort and time to produce a product to achieve a goal. During this study, they benefit from each other, make up for their deficiencies, correct their mistakes, discuss, evaluate and interpret the results they have obtained and come to a decision (Büyükgöz & Çivi, 1999). There are important differences between cluster work and collaborative group work in terms of planning, implementation and evaluation. Moreover, cooperative learning is a student-centered method. Students must actively participate in learning activities (Cooper & Mueck 1990; Şimşek, Doymuş, & Şimşek, 2008; Sonthara & Vanna, 2009; Osman, Duffy & Lee, 2011).

There may be conditions that must be met for a group to work on cooperative learning. These conditions can contribute to the success of students in cooperative learning groups as Positive Interdependence, Individual Accountability, Face-to-Face Promotive Interaction, Social Skills, Group Processing. When learning groups are explained, it is stated that the success of the individuals in the group depends on each other, and the hard work of a student in the group increases

the success of other students (Johnson & Johnson, 2009; Senemoğlu, 2018). The necessity of evaluating each student's performance individually is that the purpose of the groups is to make each member a stronger individual. Face-to-face interaction among group members increases accountability, social modeling, and social support (Angell, 2014:13). Verbal communication seems to be effective in students' learning from each other and in teaching what they have learned to their classmates (Johnson & Johnson, 2009). Social skills improve the social aspects of the student.

It has been determined that cooperative learning is effective in improving students' academic achievement as well as improving their social skill levels (Tunçel 2006; Gülay 2008). Group Processing (evaluation of the process) reveals how far the student group has achieved the goals. The cooperative learning method can be widely used at all educational levels. Its success can largely depend on positive and supportive relationships between theory, research and practice. It can be said that social solidarity theory provides a basis for cooperative learning (Johnson, Johnson & Smith, 2007; Johnson, & Johnson, 2009).

There are many studies on cooperative learning. Some studies in this area are summarized below:

Gümüş & Buluç (2007) attempted to determine "The Effect of Collaborative Learning Approach on Academic Achievement in Turkish Lesson and Students' Interest in the Lesson." The pretest-posttest control group design of the experimental method was used. Additionally, an opinion determination questionnaire was applied to the experimental group students. According to the results of the research, it was seen that the experimental group students who teach with the cooperative learning approach enjoy teaching with this approach and understand the lesson better, they enjoy taking part in the group, they are more active in the lesson, and they want to teach other lessons in accordance with this approach. In Turkish teaching, a significant difference was found in favor of the experimental group according to the post-test results of the experimental group students who were educated in accordance with the cooperative learning approach and the control group students who were educated in accordance with the traditional approach.

In the study by Dalsgaard & Paulsen (2009), they tried to reveal whether the cooperative learning method improves virtual learning environments that ensure that students have the best individual freedom in online learning communities. In addition, this study aims to demonstrate how cooperative learning can be

supported with transparency. To illustrate this with the available examples, the study also presented NKI distance education surveys and experiences with cooperative learning. Moreover, the research also discussed how social networking and transparency can be used in collaborative online education. As a result, it was revealed in the article that the pedagogical potential of social networks is in the ability to create transparency and awareness among students.

In his research, Göçer (2010) determined whether the use of collaborative methods and jigsaw techniques in teaching literary genres is significantly effective in teaching literary genres. In this study, both quantitative and qualitative research was used. This research was conducted with a study group of 60 students. According to the qualitative and quantitative findings, it was found that cooperative learning and jigsaw techniques were more effective than traditional teaching methods.

Bozavlı (2012) investigated the effect of cooperative learning on foreign language teaching. In this study, it was determined that cooperative learning models in foreign language teaching offer learners opportunities to interact. In order for this interaction to be healthy, it may be necessary to consider the level of social relations rather than the level of academic knowledge in the cooperative learning method. It has been concluded that social relations can create very productive results, especially for learners.

In Herrman's (2013) study, the pre-test and post-test designs of the experimental design were used. The effect of cooperative learning on the participation of 140 students in a class and their approaches to learning was examined. Additionally, the data collected through open-ended questions were analyzed and interpreted. It has been determined that cooperative learning significantly affects students' active participation in the class and their positive approach to learning.

Arisoy and Tarım (2013) examined the effects of the Student Teams-Achievement Divisions and Team-Game-Tournament techniques in the mathematics lesson, in the study of the effect of the cooperative learning method on the academic achievement, retention and social skill levels of the students. In the study, in which quasi-experimental design was used, "Mathematics Achievement Test" and "Social Skills Scale" was applied to the groups in which there were two experimental and one control groups, as pretest and posttest. Five weeks after the posttest was administered, the "Mathematics Achievement Test" was given as a retention test. It was found that the Team-Game-Tournament technique was more effective in academic achievement, and that the Student

Teams-Achievement Divisions technique was more effective in terms of permanence. In terms of social skill levels, it was emphasized that there was a significant difference in favor of Student Teams-Achievement Divisions and Team-Game-Tournament groups.

A study was conducted by Topal & Kırbaş (2014) on teachers' opinions on cooperative learning method in Erzurum. Because of the research, the teachers who are in their first 15 years of the profession (1st group) compared to the teachers (2nd group) with more than 15 years of professional experience; on the other hand, it was determined that female teachers viewed the cooperative learning approach more positively than male teachers. Additionally, it has been determined that teacher qualifications are more suitable for the cooperative learning method.

An experimental study by Tran (2014) in Vietnam investigated the effects of cooperative learning on reaching a psychology topic and 110 graduate students at Giang University during an eight-week course. These graduate students are divided into two groups with 55 matches given by the same lecturer. Cooperative learning was used in the experimental group and lesson-based instruction was used in the control group. The results showed that after about 8 weeks, students who learned using cooperative learning achieved significantly higher scores in achievement and knowledge retention than students who taught using lecture-based teaching.

The aim of the study by Çolak (2015) is to determine the effectiveness of cooperative learning activities in providing deep learning according to students' learning styles. It consisted of 39 students who attended a private teaching methods course in a pedagogical certification program at a state university in Turkey. The method is a pretest-posttest single-group experimental design. In the research, the Grasha-Riechmann Student Learning Style Inventory was used to determine the learning styles of the students and the study process questionnaire was used to determine the learning approaches. Covariance analysis was performed in the analysis of the data. The post-test scores for the deep learning approach showed significant differences depending on the learning style. According to these scores, the scores of students with cooperative and competitive learning styles were found to be significantly higher than the scores of students with dependent and participatory learning styles, who did not avoid the deep learning approach. However, students' final scores for surface learning did not show a significant difference in terms of learning styles.

Pesen and Bakır (2016) investigated the effect of the collaborative learning approach on the achievement of 6th grade students in subject mathematics. The

pre-test post-test design of the experimental design was used. In the analysis of the data, t-test, arithmetic mean, standard deviation, frequency and percentages were calculated. At the end of the study, student opinions based on cooperative learning were collected with an open-ended semi-structured interview form. Because of the study, it was seen that the group taught with the cooperative learning approach favored the post-test scores, and there was a significant difference in the achievement scores of both groups in favor of the experimental group. Students emphasized that cooperative learning is beneficial and that operation is important.

Gillies (2016) mentioned in *Cooperative Learning: Review of Research and Practice* that cooperative learning is a common pedagogical practice that encourages socialization and learning among students in different subject areas from pre-school to higher education level. It is emphasized that to achieve common goals or to perform group tasks, students work together to complete goals and tasks that they could incomplete on their own. This study reviews developments in research and practice on cooperative learning, focusing on key factors that help explain success. It is revealed that teachers play an important role in developing students' thinking and learning while applying this pedagogical practice in their classrooms.

Arslan and Zengin (2016) investigated the effects of cooperative learning method and traditional learning method on scientific and social skills of university students in a science teaching laboratory course in their study of the effect of cooperative learning methods on scientific and social skills. The pretest-posttest control group of the experimental design was used. In the analysis of the quantitative data, arithmetic mean, frequency and percentage, in the qualitative part, the data were collected by observation form and semi-structured interview form and content analysis was performed. At the end of the study, it was found that the cooperative learning method had a positive effect on scientific and social skills.

This research by Chen & Liu (2017) explains the effect of Thanh-Pham's (2014) cooperative learning on the learning achievements of Confucian Heritage Culture (CHC) students. This study was based on a literature review conducted between 1990 and 2006. For this purpose, 39 publications were examined. As a result, visible changes regarding the effect of cooperative learning in Confucian Heritage Culture contexts were determined. Specifically, positive findings increase from 47.2% to 86.9%, while negative and zero-change studies decline significantly.

Akdağ and Yıldız (2020) investigated the effects of collaborative learning-oriented writing activities on the academic success and attitudes of social studies

teacher candidates in the world problems course with collaborative letters and collaborative classical report studies. It is seen that the quasi-experimental design was used and the study was conducted with two experimental groups. The data were collected with the academic achievement test, the contemporary world problems attitude scale, letter writing and classical report writing evaluation rubric. It has been revealed that the collaborative classical reporting and collaborative letter writing activities significantly increased the academic achievement of teacher candidates. It was observed that there was a significant difference between the attitudes of the teacher candidates who applied cooperative letter writing. It was concluded that there was no significant difference between collaborative letter writing skills and collaborative classical report writing skills.

In the study “The Effect of Cooperative Learning Approach in Social Studies Teaching: Meta-Synthesis” conducted by Taş & Akoğlu (2020), studies conducted in Turkey and other countries in the last decade were included. The research was a meta-synthesis study in which 36 studies were included in the study. The data were obtained by searching the literature in BAU (Bahçeşehir University), ERIC (Education Resources Information Center), Google Scholar and Education Source databases. In the study, it has been revealed that Cooperative Learning methods and techniques are effective in many variables that affect learning, such as academic achievement, attitude, social development, motivation and self-efficacy. It has been seen that it has a positive effect on students’ reading comprehension and comprehension levels. It has also been found that students develop and support their democratic attitudes, self-control, gain an empathetic approach, teach and understand the concepts of multiculturalism.

In the article titled The Effect of Collaborative Learning in Education by Alacapınar and Uysal (2020), 15 thesis studies covering the pretest-posttest control group experimental design on collaborative learning approximately 2018-2020 were analyzed by meta-analysis method. Meta-analysis was used to determine the effectiveness of the process in the analysis of the data. The effect of the cooperative learning method on the cognitive achievement, attitude and retention scores of the students was examined. Because of the meta-analysis calculations, it has been revealed that cooperative learning has a positive effect on both cognitive achievement/achievement and retention compared to the currently existing teaching method in classroom teaching.

In the research conducted by Karalı and Aydemir (2020), the effect of cooperative learning method on academic achievement and attitude toward mathematics in primary school fourth-grade mathematics lesson was revealed. A single group pretest-posttest design was used in the study. Because of the research, it was determined that the combination of the techniques in the cooperative learning method did not cause a significant gender differences in the academic achievements and attitudes of the male and female students in the experimental group. Students expressed a generally positive opinion about the cooperative learning method.

This research by Letina & Vasilj (2021) discusses the concept of cooperative learning and the role of education in developing the competences of future teachers for their teaching practices. The relevant literature is being searched. Previous research has looked at whether adequate analysis has been conducted of the competencies of teachers and teacher education students and the role of educational programs in their training. Because of the research, applications are generally neglected; it has been found that there are not enough studies on the effectiveness of teacher education programs. For this reason, the need for research that will encourage the quality and a more frequent implementation of cooperative learning has been determined.

Seven databases covering the application of cooperative learning in different educational stages in the last 5 years (2014–2019) were used in a study called a systematic review of research conducted on Cooperative Learning in Physical Education (2021) by a group of researchers. After the exclusion criterion, 15 articles were fully evaluated according to eight criteria: year and author, country, number of participants, education level and duration of practice, a type of research, curriculum content, purpose of the research, most relevant results, and learning environment. Research results showed a greater focus on secondary education, particularly short-term interventions. Most studies used qualitative and/or mixed methods and dealt equally with sport, motor skills and physical abilities, but underrepresented body expressions. Regarding the aims of the studies, more social learning was evaluated by focusing on motivation, group climate, and teacher-student interaction. Criticisms of the brevity and disconnection of experiences can still be considered valid. This review can help researchers and teachers implement collaborative learning programs in PE in primary and secondary schools. Only schools and teachers should use this method in accordance with the rules (Bores-García, Hortigüela-Alcalá, Fernandez-Rio, González-Calvo, and Barba-Martín, 2021).

1.1. Survey Objective

It is a desired feature in education that the student learns the gains as soon as possible and easily. Different views have been put forward to provide this feature. One of them is the cooperative learning method. If it is proven that this method provides convenience in ascribing the desired behavior to the student, it can be used frequently and effectively in the educational environment. Thus, time and effort can be saved. The educational environment can become a place of enjoyment.

1.2. Problem Statement

What are the opinions of the 2nd year undergraduate students of the faculty of education on the effectiveness of cooperative learning?

2. Methodology

The phenomenological approach of qualitative research was used in this study (Sönmez & Alacapınar, 2016). Phenomenological studies are an inquiry strategy applied by the researchers to reveal human experiences (Creswell, 2003). Phenomenology is a research design that investigates phenomena that are known but not in-depth knowledge and to obtain results that will help better define or explain the phenomenon (Robson, 2005).

There is no validity and reliability in qualitative research as in quantitative research; because there is an orderly disorder, that is, random chaos in the universe. The universe is constantly changing. The data collected in this context may be unique, instantaneous, for that condition and process. Here, in qualitative research, it is possible to talk about consistency, plausibility instead of reliability, and credibility, acceptability, transferability, accuracy and confirmability of the results, and the competence of the researcher instead of validity (Krefting, 1991; Guba & Lincoln 1982; Auerbach, & Silverstein, 2003, Sönmez & Alacapınar, 2016). The long and continuous interaction, participants affirming the data, specifying more than one strategy, increasing participants and experts, and diversifying the data may be appropriate to ensure credibility (Creswell, 2003). A comparison of two or more data sources and data collection methods on the same subject can be used in data diversity. Thus, the deficient and weak aspects of the research can be eliminated.

Multiple experts may be consulted in the collection and analysis of research findings. It is impossible for these experts to be in harmony with the collection

and analysis of data, that is, to ensure content validity as in quantitative research. Each specialist can look at the facts and findings from different angles. This is the requirement of qualitative research; because the cases may have different aspects and characteristics according to each specialist. Moreover, the researchers can change and add new questions during the research or even during the writing process (Sönmez & Alacapınar, 2016)

In fact, the experts and methods they use to analyze the data and explanations and interpretations they make may vary. Thus, cases can be handled and analyzed multidimensionally. Thus, when the findings in the research are explained and interpreted because of the analysis, the information obtained can be further enriched, validated and transferred. Therefore, content validity cannot be mentioned in qualitative research as in quantitative research, and it cannot be correct to calculate content validity with formulas (Sönmez & Alacapınar, 2016).

The collected data can be subjected to basic analysis first and then in-depth analysis, descriptive and content analyzes can be conducted. Each expert may explain and interpret the data differently. Thus, it can be ensured that the different features of the phenomenon are examined and its characteristics are revealed more clearly. Experts may not be expected to agree because the theory or the support of the theory is absent in the philosophy of science on which qualitative research is based. According to the reconstructive, post-modern and interpretive philosophies of science, each researcher can explain and interpret the phenomenon differently at any time; because he can look at the phenomenon from a different angle, with a different approach; Moreover, since the phenomenon is constantly changing, it is not the previous phenomenon. This may make the research more interesting and rich in terms of information (Yıldırım & Şimşek, 2013; Sönmez & Alacapınar, 2016).

2.1. Working Group

According to the post-modern understanding of science, every person and phenomenon is unique. It is not correct to generalize them to the universe. There are no general explanations in this qualitative research. There is an orderly disorder and chaos in the universe (Sönmez and Alacapınar, 2016). According to the post-modern understanding of science, every person and phenomenon is unique. It is not correct to generalize them to the universe. There are no general explanations in this qualitative research. There is an orderly disorder and chaos in the universe (Ekiz, 2009; Sönmez and Alacapınar, 2016). Thirty-

five second-year undergraduate students studying at the faculty of education of a university and taking the course of teaching principles and methods from vocational knowledge courses were included in the study. 22 of these students were girls and 13 were boys. The reason why all students of a class are taken; because this class and the lecturer have been together for three semesters and taught lessons. The research was conducted after effective communication and association was established between the students and the lecturer, that is, after the students adopted the lecturer as one of their own.

2.2. Data Collection Process

Documentation can be defined as the collection and examination of written visual material. It can be used in both quantitative and qualitative research. The important thing is that the researcher knows what, why, why, how and where to search (Sönmez & Alacapınar, 2016). In the research, it was aimed to get the opinions of the education faculty teacher candidates about cooperative learning after the application. Pre-service teachers took a 12-week teaching principles and methods course. The pre-service teachers, who were divided into 5 groups in the last two weeks, presented the previously determined topics according to the methods, techniques and strategies they received in the classroom according to the groups they formed on a cooperative basis. The research was conducted according to the process to be followed in cooperative learning.

In this process, the lesson was taught according to the achievements and behavior of the teaching principles and methods course. Classes were divided into groups, and each group was prepared according to the themes they had taken on a cooperative basis. The lecturer of the course was asked to choose a theme from the fourth, fifth and sixth grade textbooks and write this theme in a way to cover the elements of the program (objective-behaviour, content, educational status). The students and the lecturer planned each student's task in the group, their learning processes, consulted the lecturer when they needed help and got help. Students completed the necessary preparations to present to the class. For this, the preparation was made using PowerPoint, Publisher and Movie Maker programs. The Ministry of Education Intel program was used.

With this program, it was aimed that pre-service teachers use technology, develop cooperation among 21st-century skills, and learner-centered learning. The groups were evaluated by two faculty members. This process took 14 weeks. The degree of participation of all members of the group in cooperative learning was revealed in the received opinions.

2.3. Analysis of Data

Written opinions were obtained from the students who took the teaching principles and methods course for one semester on the cooperative learning-teaching method, without specifying their names, and a basic and then in-depth analysis (content analysis) was performed on the collected data. It was determined that all the students wrote their opinions without hesitation.

Written detailed opinions on the positive and negative aspects and the situation can be accepted as proof of credibility. Additionally, the data obtained overlap with the results of the research conducted on other similar groups. This situation can also be considered a proof of transferability. Data were categorized, then explained and interpreted. For each determined category, ten volunteer students selected by lot were asked to write their opinions in detail. During the detailed written opinion, first the opening questions, then the alternative questions and finally the end questions were used sequentially and when appropriate (Sönmez & Alacapınar, 2016). The collected data were stored to be presented to the desired individuals and institutions.

The analysis of such qualitative research data is performed to understand the data, to understand its essence, to describe and define them, and to reveal the hidden truth (Yıldırım & Şimşek, 2008; Sönmez & Alacapınar, 2016). Generally, data are not digitized and translated into mathematical language for statistical analysis. Instead, teeming, categorization and coding are done. Through these, data are described, explained and interpreted (Auerbach & Silverstein, 2003; Glesne, 2012). In this context, the data were first coded, categorized and themed. The researcher sought participant confirmation and the opinions of three different field experts to ensure the consistency and acceptability of the codes, categories and themes he reached. Taking into account the differences of opinion among the experts, it was decided to use the agreed codes, categories and themes in the writing of the research.

3. Findings

In the Teaching Principles and Methods course, written opinions of the students in the class about cooperative teaching were taken and their opinions were collected. Fundamental analysis was performed on these views first, and the data were collected in positive and negative categories and are presented in Table 1.

The opinions of the 2nd year undergraduate students of the faculty of education on collaborative teaching were categorized and tabulated. The data are presented in Table 3.1.

Table 3.1. Student opinions on cooperation

<i>Positive opinion</i>	<i>Negative opinion</i>
Working in groups increased cooperation, cooperation and solidarity with each other.	Some friends in the group did not pay attention to the homework.
She (he) taught me how to behave in a group and take responsibility.	They are irresponsible. Some of friends did not contribute at all.
The benefits it provided me, I understood very well the task sharing in group work.	If one member of the group does not do her (his) duty, the whole group suffers.
Although there were some differences of opinion, we could reach a common decision by discussing.	Putting responsibility on one person by saying "You know you can do it." Not everyone assumed an equal number of responsibilities.
We learned to work together through group work.	I had problems because of the lack of information, differences in opinion.
We understood the importance of respecting each other's opinion, producing new ideas together, making the right decisions by discussing ideas, sharing and helping each other.	No one understood what was said; this caused confusion. These constant arguments caused unrest. There were nervousness, stress, many nerves.
We shared ideas with people I had never spoken to in class. We socialized.	I think there are too many members of the group; should be at most 5 or 6.
By finding and correcting mistakes; we learned to eliminate the deficiencies and to reach more correct thoughts and solutions together.	People trying to impose their own words on others and the emergence of communication problems.
It's a fun and easy job.	Since we were staying in the dormitory, our meeting place had to be the school.
In a short time, I did a lot of work with little effort.	Working in groups is more difficult than individually. It took me a long time to even assemble the group.

As shown in Table 3.1, students' views on cooperative teaching-learning activities were subjected to basic analysis. Because of this analysis, the data can be collected into two categories as positive and negative opinions.

Positive opinions: *“Cooperation, cooperation and solidarity, having a sense of responsibility, respecting ideas, producing new ideas together, discussing ideas and making the right decision, sharing, socializing, correcting mistakes, completing deficiencies, reaching more truth and new ideas, working with pleasure, can be categorized as “doing a lot of work with little effort in a short time.” However, the negative opinion of the students was that “Constant arguments caused unease. Stress, a lot of anger. Do unload all the homework on one person, irresponsibility, some people do not take part in all, the working environment is not suitable, it takes time to assemble the group, there are communication problems, the number of groups is high, It can be said that they mean “trying to force their opinion, lack of knowledge.”*

Five volunteer students were selected from among the university students. Five selected students were asked to write in detail **their positive and categorized opinions** on cooperative learning activities. These opinions are presented below by eliminating typographical and sentence errors.

Participant 1. *We cooperated with our friends. In this way, we save time. It has become very easy to bring out any opinion. Moreover, doing group work increases cooperation and solidarity with each other. In these assignments, we learn everyone's thoughts and compare them with our own. It was a productive event.*

Participant 2. *Working as a group gave me a sense of communication, responsibility and being working together. Having a sense of responsibility when doing group homework; because in this type of homework everyone gets a task. The benefit is more than the harm, it allows us to be a group and act collectively. That's why it was useful. It was productive and nice as a group work. He taught me how to behave in a group and take responsibility. Not just one, but many ideas arose.*

Participant 3. *Within the scope of cooperative learning, we did group work in solidarity with my friends. The benefits it provided me, I understood very well the task sharing in group work. I did not experience any negative situation. It was nice to do group homework. Collaboration is a good thing, but everyone should have the same responsibility, or others will have to deal with it unnecessarily. Group work contributed to the issues such as presenting different views to me, sharing the tasks easily, and fewer tasks due to the distribution*

of tasks to everyone. I didn't encounter any problem. We shared tasks together easily. I saw that your girlfriends were a little more prepared. **Making-finding-discussing our right-wrongs together at the level of fusion and knowledge.** I found it was very positive. **There has been a change in the rote learning system for us.**

Participant 4. Even people who did **not have much contact with each other** in the classroom **came together** thanks to the group assignment. There was a fair distribution of group assignment. This group work gave me positive results. There were also men in our group. **I started to say hi to my friends I didn't talk to.** I tried my best to do the given task. I thought like this; I said that **if I don't care, this assignment will affect my friends' grades.** The sharing was very fair. He contributed. Thank you teacher.... It has helped us a lot in collaborative work. **We shared ideas with people I had never talked to in class.**

Participant 5. We learned to work together through group work. We have learned to respect the opinion of the other people, to produce new ideas together, to discuss ideas and make the right decisions, to share and to help each other. In group work, we had difficulty combining ideas and meeting on a common point. I observed that a good work could be produced by cooperating and **finding creative ideas.** On the positive side, we could correct each other's mistakes, and what someone got wrong, **someone else could correct.** I learned by **watching a friend who knows** the applications that I can't do. It was convenient for us to do the homework with the group. We did a collaborative homework. We facilitated the division of labor.

Five volunteer students were selected from among the university students. Five selected students were asked to write down their **negative and categorized opinions on** cooperative learning activities in detail. These opinions are presented below by eliminating typographical and sentence errors.

Participant 1. In cooperative learning, I had problems while preparing **the assignment due to disagreements within the group.** The process of preparing the homework was troublesome; because none of the band members knew exactly what to do. I think that the homework we did is not for **Public Personnel Selection Exam (KPSS);** because it is more application-oriented than knowledge. **But unfortunately, the next exam Public Personnel Selection Exam (KPSS) does not make us prepare a slide.** In order for me to be appointed to this department, I will need to have information about KPSS. I couldn't get that information in my homework. Additionally, if the study was individual,

there would be no problem in terms of time and place. I could sit and do my homework whenever I wanted.

Participant 2. *We had a friend who did not participate in the study. We had a problem with it. Everyone else fulfilled their responsibility. But we struggled a lot, so we learned from each other place that we did not know. The bad part is that some friends didn't want to take much place in the homework. This really bothered me. Everyone criticized each other because you did this, you did not take part in it. Working collaboratively has been difficult with my group members. However these responsibilities are unevenly distributed. Responsibilities were not fulfilled. If we worked individually, we could hold on to our homework more tightly. Homework was hard. Not all of us knew how to use the program. He fell upon the one who knew. On behalf of myself, it would be more appropriate to work with female student.*

Participant 3. *The proportion of those who do nothing in the group and did not work high. It was just sitting. They laughed while I was doing the homework (preparing songs, they made noise while singing; I sang the song all the time) etc. my concentration is broken. I could be neurotic. That's why I always prefer individual homework. Doing and laboring is not distinctive. My male group mates were very mismatched. It only took 1 h to prepare the poster. He did not do what we said, he resisted. Some of my friends did not actively participate. I was disturbed about this. Working with my boyfriends were not good. This was irresponsible, some of them were not interested in the homework. The downside is that we don't have much respect for each other's opinions. For example, my friend could not accept my opinion. Because of the decrease in our number in the group, the burden is on three or four people (one person is only in the environment). Putting the responsibility on one person by saying "you know you can do the programs" only.*

Participant 4. *I had a hard time doing the homework because there was no cooperation in my group. I had a problem as none of them had anything to do with the assignment. I could not get along with my groupmate male students. This is because they are irresponsible. I am a student who listens to the lesson, gives importance, and follows the lesson by getting good grades in the exams. They don't know anything, because they don't understand your lesson. Of course, the same goes for female students. 1–2 of them. I can't give myself to my task from telling them in the group. I would prefer to do it individually. They did not arrive on time for group meetings. They said they had a permanent job. Even if they came, excuse me, they gawked while we were doing it. I*

apologize again. They gave me things I couldn't do. They couldn't do anything either. **Moreover, they said that it is your problem, do the homework how you do it. I had to leave the group too. My teacher brought personal issues to the group assignments and held a grudge against me.**

Participant 5. *Some friends brought their private life problems to the group. Homework was one thing, friendship was another; but they are immature so it was a lot of trouble. There was no sense of responsibility in general, we ran after them and forced them to do their homework. I'm sick of people. Being a teacher is nothing but a person who is irresponsible. He is 21 years old and still has a childhood. I'm not a parent, so I can handle it. It's the first time I've seen so many troubled people together. I have never experienced anything like this in high school. Officially, I called the diary and sent a message to for homework. Nervous, many nerves, stress, disagreement, difficulty in communication, tension. We understand the difficulty of getting along with more than one person. Teacher, even though we are friends in the group, we do not get together for homework or something. People are so insensitive. I don't think group homework should be given. There was absolutely no benefit. Inevitably, communication problems arose with my friends in the group. It was a tense atmosphere, and there were endless discussions and tension. Unrest ensued. It might have been fun actually, but it wasn't quite like that for me.*

4. Discussion, Conclusion and Recommendations

In the cooperative learning method, the student actively participates in the learning environment. This active participation can both facilitate learning; as well as make it enjoyable. As a matter of fact, the students said, "There has been a change in the rote learning system for us. "Working and learning together is an enjoyable and easy task. I did a lot of work in a short time with minimal effort. I'm not bored." They supported this judgment.

Working together also promotes cooperation, solidarity and taking responsibility. They are related to the affective domain. Research has proven that there is a positive and significant correlation of 0,25 level between student's affective characteristics and success (Bloom, 1976; Senemoğlu, 1987; Taş & Akoğlu, 2020). Students who worked together successfully "we learned to cooperate, to take responsibility, to share the task, to do a job together and to succeed, to discuss, to respect the opinion of the other people, to communicate. We shared ideas with people I had never talked to in the class, and we started to greet each other." They emphasized that they also gained high-level desired behavior. In any case, such high-level affective acquisitions are expected to be

taught through cooperative learning (Tunçel, 2006 ve Gülay, 2008). Additionally, some students said, **“We found and corrected our mistakes and deficiencies by discussing with each other. We learned to produce more correct and new ideas.”** In their statements, they stated that they learned the acquisitions related to the cognitive domain fully. Collaborative learning, can be aimed to teach cognitive and affective high-level acquisitions (appreciation with practice and above) (Sönmez, 2004; Alacapınar & Uysal, 2020; Karalı & Aydemir, 2020).

In some groups where cooperative learning activities are used, undesirable behaviors may occur. In societies where individuality is dominant, there may be some difficulty in group work. These difficulties may arise from the experiences that the person has lived up to that time, that is, the cultural environment in which he lives. They said, **“You know you can do it,” and don’t take responsibility for one person. Your problem is, do your homework how you do it, they said. It fell on the person who knows.”** As can be seen from their expressions, in some groups, one or more people did the homework. The majority of these did not participate. He did not take any duties or responsibilities. Such phenomena are undesirable qualities in a cooperative learning environment; because they can undermine the basic principles on which they are based and prevent desired behavior from occurring. The reason why some students behave in this way can be attributed to their lack of sense of responsibility and they are male. As a matter of fact, **“There was no sense of responsibility. It would be more appropriate to work with female students on my behalf. I could not get along with male students with my group friends. My male group friends were very incompatible.”** They support this view.

Generally, cluster work is not given weight in the Turkish education system. Individual work dominates. This may be the reason for the emergence of undesirable behaviors in the cooperative learning environment. Additionally, students who did not grow up in a cooperative education environment may adopt others to do the work, so they may want to get what they deserve without spending any effort and time, and want to live as a parasite. In this context, they can show such behavior and attitudes in cooperative education environments.

As a matter of fact, **“I had problems because none of them were interested in the homework. I would prefer to do it individually. They did not arrive on time for group meetings. They said they had a permanent job. The proportion of those who did nothing and did not work was high in the group. It was just sitting. It does not distinguish between those who do and give effort and those who do not and do not.”** They have explained this judgment with their opinions

and emphasized that this result is not fair. Another reason for such behavior may lack of knowledge. "Even if they come, they gawked at you, excuse me while we were doing it. They don't know anything because they don't understand your lesson." As it can be understood from their statements, those who lack knowledge of the field cannot participate in cooperative education activities. Another reason is that some students may have expectations from the course. Most of them were preparing for KPSS. They want to be successful in this exam. Collaborative activities supported the implementation and beyond. practice and problem solving, putting forward new ideas, may be the main features of these activities. In this context, when students do not see any contribution toward the KPSS exam, they may not want to participate in collaborative activities. This argument is **"I think that the homework we did is not aimed at KPSS because it is more practical than knowledge. Unfortunately, the next exam (KPSS) will not make us prepare slides. I need information about KPSS to be appointed from this section."** he supports it. When the person needs it, the motivation to learn can increase when he sees concretely what he has learned will help him in life (Gagne & Driscoll, 1988; Bozavlı, 2012). Therefore, some students may not participate effectively in cooperative learning activities. Moreover, they may engage in many undesirable behaviors due of lack of knowledge, skills and motivation for these activities. These behaviors were found in those who participated in collaborative activities **"I had problems due to conflicts within the group. The process of preparing the assignment was difficult because none of the group members knew exactly what to do. Nervous, a lot of anger, stress, disagreement, difficulty in communication, tension. I find it difficult to get along with more than one person. We get it. There is a problem with time and place. Some people mixed their private life problems with the group"**.

However, even in such heterogeneous groups, effective communication, planning and organization can erase unwanted attitudes and behaviors in students; they can participate in activities willingly and gain high-level learning easily (Slavin, 1990; Açıkgöz, 1992; Johnson, Johnson & Smith, 2007). In a cooperative learning environment, students can increase their motivation by working together and maximize their learning by sharing their knowledge and skills; all group members are responsible for this (Tonbul, 2001).

Positive and negative cognitive and affective behaviors can be experienced in the educational environment during collaborative practices in the Turkish education system. While gaining the desired behavior, activities that support and require cooperation rather than individual activities can be included in the

educational environment. Teachers can be taught practically how to use such activities in the educational environment. Cooperative learning situations can be arranged for each unit and presented to teachers for practice. According to the results of the application, mistakes can be corrected, deficiencies can be eliminated and the educational situation can be improved. Successful educational practices can be retained. They can be presented to teachers to be implemented throughout the country. Thus, information and application development website about cluster work can be set up on the Internet. Financial support can be provided by successful practices and examples. These people can be rewarded.

By creating different student clusters (from few and many students, only willing students, only intelligent students, only hardworking students, only reluctant students, mixed students, only women, only men, etc.), applying a mixed method (experimental and qualitative) to the effect of cooperative learning, can be viewed. Experimental and qualitative research can be conducted together for different and various courses, classes, schools, age, intelligence, socio-economic level. The results obtained can be stored and shared by putting them in the database.

The appropriate time and environment can be provided for the students to work. For this, workshops, libraries, some classrooms and rooms can be reserved for them at certain times. It can be checked whether groups use these or not.

A work and task division plan can be prepared and implemented to ensure the active participation of all members of the group in cooperative learning activities. Each student's actions and contribution to the group can be audited during and at the end of the specified activities. One can distinguish between those who do, those who work, those who do not and those who do not work. Those who do not work and do not participate in activities can be sent to the guidance service and a different evaluation system can be used for them.

To enable and develop students' participation in group work, group work activities can be given a more frequent place at every education level from kindergarten and students can be supported for such activities. Parents can be given hands-on training on how to use such activities. For this job, parents can be invited to schools and practices in schools, they can see the practices, and they can take part in these practices (Maloof & White, 2005).

Sharing, taking responsibility, solidarity, and effective communication are critical qualities for cooperative education. Starting from the family environment,

it can be ensured that each student is brought to life in practice at all levels of the education system. For this, methods such as group work, cooperative learning, problem solving, decision making, case study, project techniques can be used frequently in the educational environment. Those who share take responsibility, cooperate and communicate effectively can be supported financially and morally in every environment; those who show these behaviors can be rewarded in the presence of all teachers, parents and students. It can be hung on the classroom and school boards, newspaper, bulletin boards, billboards every week, together with their phonographs.

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CHAPTER VIII

OPTICAL PARAMETER MEASUREMENTS OF IRET CALIBRATORS

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1. Introduction

In recent years, the calibration of infrared ear thermometers (IRETs) within the traceability chain, which has been widely used in both diagnostic and clinical applications in healthcare institutions and increasingly in homes as consumer healthcare devices, has been a worldwide problem for a long time. Intensive and systematic studies have been conducted in the USA, European Union, and Japan to discipline this field, and special blackbody cavity standards have been established for the calibration of infrared ear thermometers.

IRETs are handheld, contactless temperature measurement instruments that are commonly used to detect the temperature of the human body. The hypothalamus in the brain regulates body temperature, which is the most accurate body temperature measurement because the eardrum is close to the hypothalamus and shares blood. Infrared thermometers characteristically employ a lens to concentrate the light from an object onto a thermopile detector. Infrared radiation is absorbed by the thermopile and is converted into heat. The thermopile became warmer as infrared energy entered the system. This heat is used to generate the electrical potential. The electrical potential is transmitted to a processor circuit, which uses it to calculate the temperature of the thermometer. Briefly, ear thermometers are devices that measure the thermal radiation emitted from an eardrum at a wavelength of approximately 10 μm to determine the body temperature (Durmus, Karaboce, Pehlivan, Korkmaz, & Kalemci, 2018) (Durmus, Karaboce, Cetin, & Ozdingis, 2018) (Durmus H. O., 2019).

IRETs must be tested for correctness using relevant technical standards and regulations before they can be used (ASTM International, Designated E1965-98 (Reapproved 2016), Standard Specification for Infrared Thermometers for Intermittent Determination of Patient Temperature) (BS EN 12470-5:2003 Clinical thermometers – Part 5 : Performance of infra-red ear thermometers (with maximum device)) (European Union, Council Directive, 93/42/EEC of 14 June 1993, concerning medical devices) (Pušnik, Simpson, & Drnovšek, Bilateral comparison of blackbody cavities for calibration of infrared ear thermometers between NPL and FE/LMK, 2004) (Pušnik & Drnovšek, Infrared ear thermometers—parameters influencing their reading and accuracy, 2005). The measurement tolerance of an IRET should be at ± 0.2 °C within the operating range of 35.5 °C to 42 °C or ± 0.3 °C outside the given range to yield an accurate measurement result, according to the requirements of the relevant standards (ASTM 1998, EN 2003, JIS 2001). This latter criterion ($\pm 0,3$ °C) applies to temperatures below 36 °C and above 39 °C (Pušnik, Clausen, & Favreau, 2011) (Manoi, Norranim, Kaneko, & Ishii, 2014) (Pušnik, Ham, & Drnovšek, IR ear thermometers: what do they measure and how do they comply with the EU technical regulation?, 2004) (Pusnik, Bojkovski, & Drnovsek, Development of a calibration bath for clinical thermometers, 2007) (Patent No. WO 2006/004559 A1, 2006) for ASTM standard. Therefore, IRETs must be calibrated on a regular basis with a reliable and traceable calibration technique to obtain accurate measurements (Ishii, 2008) (Fukuzaki, Ishii, & Kojima) (Fuzukai & Neda, 2010). However, such calibration methods are not available

within the traceability chain and cannot be performed frequently. It is difficult to determine the level of measurement quality using IRETs without traceability to the national temperature standards. Therefore, a carefully designed and produced adequate reference thermometer and blackbody source (cavity) must be calibrated by comparison with a traceable temperature standard to accurately assess the accuracy of an IRET.

The IRET project at TUBITAK UME was started with the goal of calibrating IRETs in Turkey as part of the traceability chain. Four cavities were created during the experiments. Two of these cavities, ASTM and EN standards, were outsourced to a private firm, and specific paints for the cavities were realized at the TUBITAK UME facilities. A private firm later developed a unique calibration bath that could accommodate both the cavities. After the calibration bath was prepared, it was evaluated for stability and homogeneity, and then the IRETs were tested with the calibration bath that had a blackbody source. IRETs successfully passed the test within the tolerance limits defined in the standards. In other words, at the tolerances defined in the standards, the laboratory type system can function between 35.5 °C and 42 °C (EN, ASTM). As a result, the first phase of the project was effectively completed.

The second phase of research began with the development of a portable and smaller calibrator for the calibration of infrared ear thermometers than the first one. TUBITAK UME collaborated with the manufacturer to design the portable IRET calibrator. Stability and homogeneity tests were performed in both water and air environments. However, subsequent experiments in water revealed that neither stability nor homogeneity nor IRET readings could match the standards' requirements. Therefore, it was decided to use the portable calibrator to operate only in air. A temperature distribution fan was installed in the calibration bath of the portable calibrator, and the PT-100 thermometer was positioned at the end of the cavity. Stability, homogeneity, and IRET measurements were performed after the alteration. Three distinct IRET models were used to repeat the IRET measurements, and the portable IRET calibrator passed the IRET measurement tests and stability criteria. However, because the intended homogeneity of the portable calibrator could not be attained, it could work well within the EN standard tolerances of 36 °C to 41 °C, and the ASTM standard tolerances of 35.5 °C to 42 °C. In other words, if the desired homogeneity could be achieved with the portable calibrator, it would also be possible to measure in the same range (35.5 °C to 42 °C) for EN.

This research is an extension of our previous study, which was presented in the 16th edition of the IEEE International Symposium on Medical Measurements and Applications (Durmuş & Karaböce, 2021). This new publication presents the optical parameter measurement of the produced infrared ear thermometer calibrator devices, such as the peak wavelengths for temperatures measured at set temperatures for both systems using the Wien displacement law formula, the results of the optical radiation measurement emitted from the cavity opening using an optical power meter with a thermal sensor, temperature verification results with a thermal camera, and the light-emitting hole radius simulation results, which provide the power measurement closest to the actual power measurement. Thus, the relationship between the theoretically calculated optical power and the real optical power at the highest correlation can be determined. In other words, the ultimate aim and contribution of this study to the literature is to report the optical characteristics of the developed instruments, such as peak wavelengths arising from the calibrators, optical powers, and the ideal light-emitting hole radius emitted from the cavity openings. This study clearly reveals the existence of blackbody radiation as a result of optical power measurements. Therefore, it is very interesting, innovative, and instructive in the field of instrumentation and measurement, and it contributes to the development and measurement of infrared ear thermometer calibrator instruments. To the best of our knowledge, this study was examined for the first time in the literature in our research.

The remainder of this chapter is organized as follows. In the second part, some information will be presented regarding the laboratory-type IRET calibrator, portable IRET calibrator, blackbody sources/cavities, reference and fixed thermometers used, the IRET used in the measurements, the thermal sensor and optical power meter used, the emissivity of the cavity, and the Wien displacement law information. In the third part, the peak wavelength calculations at the set temperatures, optical radiation measurements, simulation results of the light-emitting hole radius, and comparison of the calculated power with the real power at the best hole opening are detailed, and the results are summarized in the last section.

2. Methodology

In this study, laboratory and portable IRET calibrators, blackbody sources/cavities, reference and fixed thermometers, infrared ear thermometers, optical power meters, and thermal sensors were used. All the experiments were carried

out under controlled laboratory ambient conditions (temperature was $23\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$; relative humidity was $45\text{ \%rh} \pm 15\text{ \%rh}$).

2.1 IRET Calibrator of the Laboratory Type

A reference thermometer and blackbody source must be calibrated against a traceable temperature standard in a calibration bath with sufficient temperature stability and homogeneity to reliably evaluate the accuracy of IRETs. Figure 1 depicts the laboratory-type IRET calibrator. Both the EN and ASTM standard cavities can be used with the system. The temperature range for operation was $35.5\text{ }^{\circ}\text{C}$ to $42\text{ }^{\circ}\text{C}$. The external dimensions of the device were 49 cm (width), 65 cm (length), and 95 cm (height). Bath depth was 280 mm. The maximum net liquid depth was 250 mm. The volume of the liquid reservoir was 15 liters. The temperature stability of the bath produced according to the EN 12470-5:2003 standard should be less than 20 mK and the temperature uniformity should be less than 10 mK. The stability and uniformity values in the calibration bath were less than 5 mK. The thermometer used was a PT 100 resistance thermometer. The measurement position was vertical and display was $0.1\text{ }^{\circ}\text{C}$ adjustable digital display.



Figure 1. IRET Calibrator of the Laboratory Type

2.2 IRET Calibrator of the Portable Type

Figure 2 depicts a portable IRET calibrator, which was built as a second system with an EN-type cavity. The operating temperature range was 36 °C to 41 °C. The system was developed using quick field checks. Furthermore, the external dimensions of the device were 22.3 cm (width), 35 cm (length) and 27.5 cm (height). Bath depth was 190 mm. The liquid reservoir volume was 1.5 liters. According to the EN 12470-5:2003 standard, stability should be 20 mK and uniformity should be 10 mK. The stability was found to be 13.75 mK, but because the system works in air, the 10 mK values required for uniformity could not be reached. The thermometer used was a PT 100 resistance thermometer. The measurement position was vertical and display was 0.1 °C adjustable digital display.



Figure 2. IRET Calibrator of the Portable Type

2.3 The Produced Cavities or Blackbody Sources

Thus, a cavity that was properly built and fabricated for an appropriate blackbody source should be provided. Copper, a metal with strong thermal conductivity, was used to construct the cavity. The inside walls of the cavity were painted in three times at TÜBTAK UME with a high emissivity value paint (Nextel®) in the related infrared spectral region (8 μm - 16 μm) encompassing a temperature range of 35 °C to 42 °C. Figure 3 depicts the actual cavity manufacture and inside

paint production using ASTM and EN standards, respectively. The dimensions of the EN-type cavity were as follows: the copper pipe diameter was 39 mm, entrance of the IRET device was 20 mm, full length of the cavity was 135 mm, and copper pipe cutting angle was 30° . Dimensions of ASTM type cavity; The copper tube diameter was 108.5 mm, the IRET device inlet was 20 mm, the cavity full length was 225 mm, and the copper tube cutting angle was 36.4° (Durmus, Karaboce, Cetin, & Ozdingis, 2018).



Figure 3. Cavities manufactured in accordance with ASTM and EN specifications

2.4 Thermometers : Both Reference and Fixed

To determine the actual temperature of the blackbody, a reference contact thermometer (a PRT-platinum resistance thermometer calibrated at TUBITAK UME Temperature Laboratory as per the fixed points specified at the International Temperature Scale of 1990 (ITS-90) (Guide to the Realization of the ITS-90)) with a low uncertainty of approximately 0.003°C was employed in the calibration of an IRET calibrator of the laboratory type. The reference thermometer was located close to the tip of the cavity in the water-bath section of the laboratory IRET calibrator. Baths for both the laboratory and portable calibrators use standard and calibrated PT-100 thermometers. Moreover, the uncertainty value for the laboratory type IRET calibrator was calculated as 0.07°C , while the uncertainty value for the portable IRET calibrator was calculated as 0.16°C (Durmus, Karaboce, Cetin, & Ozdingis, 2018).

2.5 *The IRET Used in Measurements*

The IRET measurement instrument was positioned in calibration baths at the blackbody intake. The values obtained from both thermometers were used in the measurement/calibration process (reference thermometer and IRET). The ThermoScan PRO 6000 model transfer standard from Braun Welch Allyn was used for comparison (see Figure 4). The Braun Welch Allyn ThermoScan PRO 6000 model thermometer was a tympanic infrared thermometer with disposable probe covers. Some technical specifications of the device are as follows. It has a normal calibration mode, which was used in the experiment. The measurement time was 2-3 seconds. displayed temperature range was between 20.0 °C and 42.2 °C. Operating temperature range was between 10.0 °C and 40.0 °C. Accuracy was ± 0.2 °C for the range between 35.0 °C and 42.0 °C. The display type was a backlit liquid crystal display with four digits and special icons. Approximately 10 s after the last measurement, it was automatically powered off. It has features such as a pulse timer, memory recall, and C/F conversion buttons. It uses a battery of 2 x 1.5 V type AA (alkaline). The battery life was 1000 measurements with an AA alkaline battery. The weight was 100 g without the batteries. The dimensions were 44 mm (width), 152 mm (length), and 33 mm (depth).



Figure 4. ThermoScan PRO 6000 model IRET from Braun Welch Allyn was utilized in the comparison.

Figure 5 depicts an IRET and the measuring systems that were employed during the measurements.

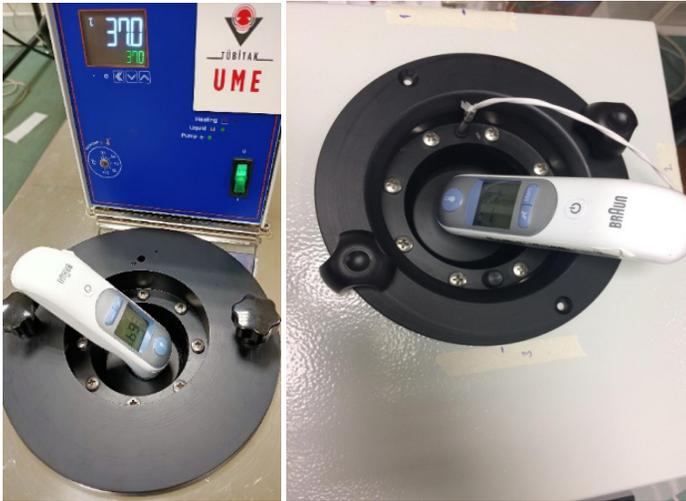


Figure 5. An image of IRET was employed in measurements for both of the systems.

2.6 Temperature Measurements of Portable IRET Calibrator with Thermal Camera

Our eyes see only visible light in the electromagnetic spectrum. Similar to infrared light, we cannot observe all other wavelengths in the electromagnetic spectrum, with the exception of visible light. All substances that have a temperature above absolute zero (0°K , i.e., -273°C) emit thermal energy. In other words, all objects emit infrared energy because of their current heat. The energy varies depending on the temperature of the material. Thermal energy is emitted in the infrared range, which our eyes cannot see. The thermal cameras operate on this basis. In other words, the thermal camera creates visible infrared wavelengths in the electromagnetic spectrum. An infrared camera or thermal imaging device detects and measures the infrared energy of an object. An infrared camera is a device that displays the surface temperature of objects using infrared data emitted from the measured objects. The thermal camera contains an optical system that focuses infrared energy onto a special detector chip (sensor array), containing thousands of detector pixels arranged in a grid. Each pixel in the sensor array responds to the infrared energy and generates an electronic signal. The camera processor receives the signal from each pixel and applies a mathematical calculation,

creating a color map of the apparent temperature of the object. Each temperature value is displayed in a different color. The resulting color matrix is sent to the camera screen and memory as a temperature picture (a thermal image) of the object. In short, a thermal camera is an imaging system based on invisible IR energy (heat) as an imaging method that determines the general structure of the image, colors, and shapes formed according to the IR energy. It can also be used for security purposes in general, but is also open to the use of a wide variety of sectors. In particular, with the development of heat-guided missiles, night vision systems, and similar military techniques, its importance has increased. In the photos taken by these devices, the hot areas are shown in light colors, and the cold areas are shown in dark colors. It shows the coldest region in blue and warmest region in yellow (Termal kameralar nasıl çalışır?, 2022) (Termal Kamera, 2022) (Termal Kameraların Çalışma Prensipleri Nelerdir?, 2021). In this study, the temperature measurements of the portable IRET calibrator were verified using a thermal camera (Optris PI Infrared Thermal Camera), as shown in Figure 6. For example, the portable IRET calibrator was set to 38 °C and the temperature was measured using a thermal camera at a distance of 3 cm above the cavity exit. The temperature value measured at 38 °C with a thermal camera was measured as 39.68 ± 0.04 °C. A temperature difference of 1.68 °C was found between the device set value (38 °C) and the measured value. The measurement uncertainty for the thermal camera is given in the device catalog as ± 2 °C (Optris PI, 2021). Also, as we mentioned in our previous publication, the uncertainty value of the portable IRET calibrator was found to be 0.16 °C (Durmuş & Karaböce, 2021). In light of these data, we can say that the portable IRET calibrator measures within the correct measurement limits, and thermal camera calibration can also be easily performed with this method within the traceability chain.



Figure 6. The temperature measurement picture of portable IRET calibrator with thermal camera.

2.7 The Thermal Sensor and Optical Power Meter

For optical power measurements, an Ophir-branded StarBright model optical power meter and an Ophir branded 3A type temperature sensor were utilized. Some technical specifications of the optical power meter are as follows. It had a brilliant color TFT 320×240 pixel graphics LCD and large 16 mm digits. It had many screen features, including power with multicolor bar graphs, energy, average, exposure, frequency, graphs, scaling, special units, and more. The output was USB, RS232, and user selectable 1-, 2-, 5 and 10 Volt full scale analog outputs. The screen refresh rate was 15 times/s. It had a size of 212 mm L \times 114 mm W \times 40 mm H. The battery was a rechargeable Li-ion battery with typically 8 h between charges. The charger also functioned as an AC adapter. Data handling data can be viewed on board or transmitted to a PC on board: data stored to USB drive (thumb drive) at rates up to 5000 points/s. Sensor features included thermopiles, BeamTrack, pyroelectric (PE-C series), and photodiode sensors. Program features that favor the start-up configuration can be set by the user. The user can recalibrate the power, energy, response time, and zero offset. It was compliant with the CE, UKCA, and China RoHS. Figure 7 shows the optical power meter that was utilized in the portable calibrator, as well as a photograph of the optical power measurement.



Figure 7. The optical power measurement equipment, which includes a thermal sensor and an optical power meter.

2.8 Beginning of Modern Physics : The Blackbody Radiation

All the objects emit electromagnetic radiation within a range of wavelengths. A colder object emits less energy than a warmer one. When an object is heated and its temperature increases, the perceived wavelength of the emitted radiation changes from infrared to red and then from red to orange. As the temperature increases, the object glows with colors corresponding to the increasingly smaller wavelengths of the electromagnetic spectrum. This is the principle underlying incandescent bulbs. The hot metal filament glows red, and as heating continues, its glow eventually covers the entire visible portion of the electromagnetic spectrum. The temperature (T) of the emitting object or emitter determines the wavelength at which the radiated energy reaches its maximum. For example, the sun, with a surface temperature of (5000–6000) K, is strongest in the visible part of the electromagnetic spectrum at a wavelength of approximately 560 nm. It is most strongly emitted in the infrared region of the spectrum when the body is at its normal temperature of approximately 300 K. Radiation incident on an object is partially absorbed and partially reflected. In thermodynamic equilibrium, the rate at which an object absorbs radiation is the same as the rate at which it emits radiation. Therefore, an effective radiation absorber is an effective emitter. A perfect absorber absorbs all the incident electromagnetic radiation. This object is known as a “blackbody”. Although a blackbody is an idealization, as no physical object absorbs 100% of the incident radiation, a small hole is

created in the wall of a closed enclosure, known as a cavity radiator. The interior walls of a cavity radiator are rough and darkened; therefore, any radiation that enters through a small hole in the cavity wall is trapped inside the cavity. At thermodynamic equilibrium (at temperature T), the cavity walls absorb as much radiation as they emit. In addition, inside the cavity, the radiation entering the hole is balanced by the radiation leaving the hole. The emission spectrum of a blackbody can be obtained by analyzing the light emitted from the hole. The electromagnetic waves emitted by a blackbody are called blackbody radiation (Blackbody Radiation, 2022).

A blackbody is an idealized object that absorbs and emits all frequencies. Classical physics can be used to derive an equation describing the intensity of blackbody radiation as a function of frequency for a constant temperature, and the result is known as Rayleigh-Jeans law. Although the Rayleigh-Jeans law is valid for low frequencies, this deviation for high frequencies is called as an ultraviolet catastrophe (The Physics Hypertextbook, 2022).

Quantum theory was first discovered by Max Planck for the quantum of electromagnetic energy emitted by a blackbody. Max Planck wanted to understand the blackbody radiation. A blackbody can be modeled using a small-hole box. The box was heated, and the system was expected to reach a steady state (at a constant temperature) and determine the type of electromagnetic radiation (intensity as a function of frequency) coming out of the hole. In 1900, Rayleigh and Jeans attempted to apply classical mechanics to this problem and correctly calculated that the blackbody would emit electromagnetic radiation with a frequency distribution. However, the larger the frequency, the greater its intensity, leading to an absurd result known as ultraviolet catastrophe. In this respect, the experiment contradicts this theory. The density distribution, T , at a given temperature (ν at a given frequency) has a single maximum. As the temperature increased, the maximum value should shift towards higher frequencies (a piece of iron appeared red at 500 °C and blue at 1000 °C). Like Rayleigh and Jeans, Max Planck took this simple qualitative picture from classical theory and believed that something had to be done. On December 14, 1900, the generally accepted date for the birth of quantum theory, Planck presented his theoretical results for a blackbody, considered as a collection of harmonic oscillators. He suggested, with considerable reluctance, that matter cannot emit radiation except equal parts (“quanta”) of the energy $h\nu$, proportional to the frequency ν of the vibrations of a single blackbody oscillator. The famous Planck constant, h , followed immediately ($h = 6.62607 \cdot 10^{-34}$ Js).

This hypothesis regarding the energy quanta led the theory to agree with the experiment and eliminate the ultraviolet catastrophe. Thus, the field of modern physics began. The word modern was chosen because the foundations of these theories were laid in the first three decades of the 20th century (Piela, 2007).

2.9 The Emissivity of Cavity

The temperature of the surface that emitted infrared energy was measured using infrared equipment. For reliable measurements, the emissivity of the thermometer must be changed. Infrared radiation is emitted by any item at a temperature greater than zero. However, not all items emit the same amount of infrared light, and the efficiency with which a material emits or absorbs infrared energy is referred to as the emissivity. The emissivity values were all in the range of 0.0 to 1.0. Because it is expressed as a perfect emitter, the emissivity rating is 1.0, which means that 100% of the energy is emitted. A 0.0 emissivity value indicates that the object does not emit any radiation. Materials with high emissivity values are extremely reflective or brilliant, whereas materials with low emissivity values are dark and dull.

Infrared thermometers capture infrared energy as their primary function. Any object with a temperature greater than zero (0 Kelvin) emits infrared radiation. The stronger the vibrations and radiation emission of molecules in the object, the higher the temperature of the body. At higher temperatures, the vibrations and radiation emissions of molecules in the object increase. The Stefan-Boltzmann law, as shown in Eq.(1-3), is the name for this phenomenon.

$$I = e\sigma T^4 \text{ (Wellons, 2007),} \quad (1)$$

$$I = \frac{P}{A} \quad (2)$$

$$P = e\sigma AT^4 \quad (3)$$

In these equations, “I” represents the intensity of the radiation or the power per unit area, “e” represents the object’s surface radiation emissivity coefficient, which is a dimensionless number between 0 and 1, “σ” is the Stefan-Boltzmann constant ($\sigma = 5,6703 \times 10^{-8} \text{ Watt}\cdot\text{m}^{-2}\cdot\text{K}^{-4}$), “T” represents the temperature, “P” represents the power, and “A” represents the area of the cavity opening.

2.10 The Wien Displacement Law

The Wien displacement law, derived from the Planck distribution, indicates that the wavelength of the maximum radiated power varies inversely with temperature, as shown by the equation below:

$$\lambda_{\max} \cdot T \text{ (K)} = 2,898 \cdot 10^{-3} \text{ m} \cdot \text{K} \quad (\text{Baird \& King, 1999}) \quad (4)$$

Here, “ λ_{\max} ” denotes the wavelength at which the curve peaks, and “T” is the absolute temperature of the radiant object.

3. Results and Discussion

Based on the temperature data obtained in our previous publication (Durmuş & Karaböce, 2021), using the Wien displacement law formula, we can separately determine the peak wavelengths at the set temperatures, at the measured temperature values for the laboratory system, and at the measured temperature values for the portable system. The results are presented in Table I. As can be seen from the results, the amount of thermal radiation was of the order of 10 μm , in line with the literature (Durmus, Karaboce, Pehlivan, Korkmaz, & Kalemci, 2018) (Durmus, Karaboce, Cetin, & Ozdingis, 2018) (Durmus H. O., 2019).

TABLE I. The peak wavelengths at the set temperatures, at the measured temperature values for the laboratory and portable system

Temperature(°C)	Temperature (K)	Calculated Peak λ (μm) at set tempetaure values	Calculated Peak λ (μm) at the measured temperature values for the laboratory system	Calculated Peak λ (μm) at the measured temperature values for the portable system
35.5	308.65	9.39	9.39	-
36	309.15	9.37	9.37	9.38
36.5	309.65	9.36	9.36	9.36
37	310.15	9.34	9.34	9.35
38	311.15	9.31	9.31	9.31
39	312.15	9.28	9.28	9.29
40	313.15	9.25	9.26	9.26
41	314.15	9.22	9.23	9.23
41.5	314.65	9.21	9.21	-
42	315.15	9.20	9.20	-

In this study, we also measured the radiation emitted from the cavity opening of the portable system using an optical power meter and thermal sensor. There is a linear association between optical powers and temperature values when we measure optical powers according to operating temperatures between 35.5 °C and 42 °C. The measured optical powers with respect to temperatures between 35.5 °C and 42 °C can be seen in Figure 8.

The results show that the blackbody source works as an ideal absorber as the calibration bath warms up because blackbodies are ideal emitters and absorbers. In other words, we experimentally observed that, as the temperature increased, the optical power and radiation increased.

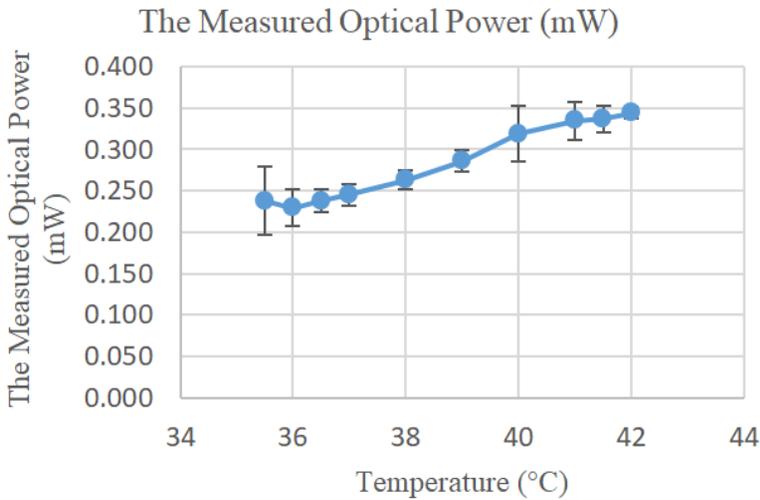
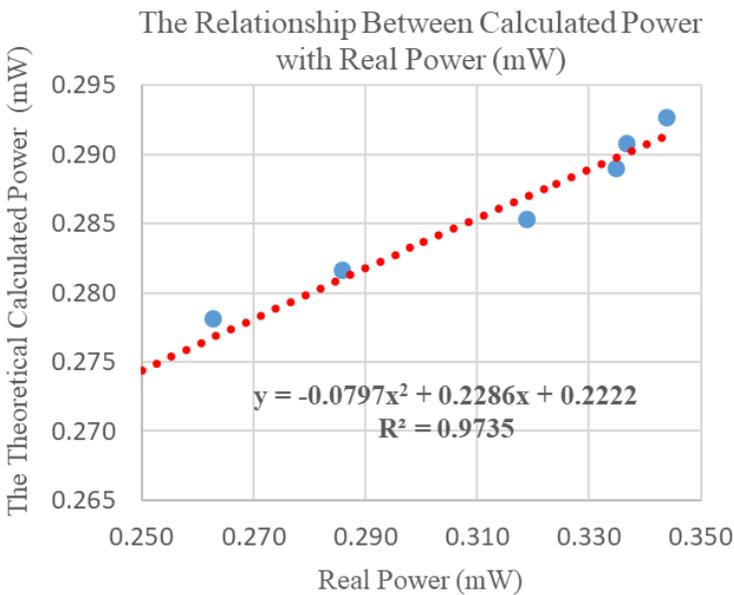


Figure 8. The measured optical powers with respect to temperatures between 35.5 °C and 42 °C.

In this work, we also searched for the possible hole radius at which the light came out from the cavity. For this, we simulated the area of the light-emitting hole radius, which provided the power measurement closest to the actual power measurement. Therefore, we used Equation (3) and compared the theoretically calculated power relationship with the real power at the highest correlation coefficient. The simulation results are presented in Table II, and the relationship between the calculated power and the real power at the best radius is shown in Figure 9. From the fitting curve in Figure 8, the agreement between the calculated power at the best simulation radius and the actual power can be seen clearly.

TABLE II. The Simulation results for the best radius of light emitting hole

Hole Diameter (mm)	Hole Radius (mm)	Correlation Coefficient	Difference Ratio Between Real Power and Calculated Power
20	10	0.987	600
10	5	0.987	150.08
5	2.5	0.987	37.52
1	0.5	0.987	1.5
0.5	0.25	0.987	0.38
0.6	0.3	0.987	0.54
0.7	0.35	0.987	0.74
0.75	0.375	0.987	0.84
0.78	0.39	0.987	0.91
0.79	0.395	0.987	0.94
0.8	0.4	0.987	0.96
0.82	0.41	0.987	1

**Figure 9.** The measured optical powers with respect to temperatures between 35.5 °C and 42 °C.

Blackbody radiation is the thermal electromagnetic radiation emitted by a blackbody within or surrounding a body in thermodynamic equilibrium with its environment. Radiation has a very specific spectrum and intensity that depend only on the temperature of the object. Thermal radiation is a type of

radiation that can be considered blackbody radiation spontaneously emitted by many ordinary objects. The blackbody appears black at room temperature; most of the energy it emits is infrared and invisible to the human eye. At higher temperatures, the density of the blackbodies increased as their color changed from pale red to yellow to blue-white. Blackbody radiation performs the Planck spectrum, which is a characteristic and distributes spectral energy that depends only on the temperature of the object. The spectrum is at its peak at its characteristic frequency and transitions to higher frequencies with increasing temperature. At room temperature, most of the radiation is in the infrared region of the electromagnetic spectrum. As the temperature increased to 500 °C, a significant number of visible rays began to be emitted. All the materials emit electromagnetic radiation when their temperature exceeds 0 °C. This radiation transforms the thermal energy of a material into electromagnetic energy; this phenomenon is called as thermal radiation. This phenomenon is a natural process for the entropy distribution. However, all materials absorb electromagnetic radiation equally. Substances that completely absorb radiation at all wavelengths are known as black bodies. When a blackbody is at a constant temperature, it has a characteristic frequency distribution, the reflection of which depends only on temperature. This reflection is known as blackbody radiation. A blackbody cavity is thought to contain a gas of photons. The wavelength at which the radiation is strongest is given by Wien's displacement law, and the overall power emitted per unit area is given by Stefan–Boltzmann law (Blackbody radiation, 2022).

The IRET project, which was carried out in the TUBITAK UME, resulted in the development of two types of IRET calibrators (as laboratory and portable type). As a result of the IRET project, calibration of both the manufactured infrared ear calibrators and IRETs can now be performed within the traceability chain. In this study, the peak wavelengths were first determined for the temperatures measured at the adjusted temperatures of the calibrators using the Wien displacement law formula. Optical radiation emitted from the cavity opening of the portable system at the specified temperatures was measured using an optical power meter with a thermal sensor. In addition, the temperature measurements of the portable IRET calibrator were verified using a thermal camera. Finally, the best light-emitting radius was determined by simulating the theoretically calculated optical power, which provided the closest power measurement to the real power measurement. In short, we show that we can also measure the optical parameters along with temperature/thermal imaging

measurements for the produced calibrators. In this study, blackbody radiation has been extensively demonstrated with physical concepts such as thermodynamic transformation, electromagnetic wave radiation, Wien's displacement law, and Stefan–Boltzmann law through the produced calibrators. Regardless of the calibration of the IRETs, blackbody radiation with the produced calibrators has been demonstrated by showing the variation in optical power with temperature.

4. Conclusions

Infrared ear thermometers (IRETs) have been increasingly used recently, particularly in health care institutions and homes, to determine body temperature in a simple, quick, effortless, and noninvasive manner. The tympanic membrane, also known as the eardrum, is close to the hypothalamus, which checks body temperature, shares blood with it, and accurately reveals the degree of body temperature. Infrared ear thermometers detect thermal radiation from the tympanic membrane to determine body temperature. Ear thermometers, which are widely used in both diagnostic and clinical applications, must be checked to ensure that they operate within the required accuracy limits. The TÜBITAK UME has developed both a portable calibrator and a primary-level calibration system conforming to the standards for IRETs in the past few years. In this chapter, we looked at IRET calibrators from a different perspective, apart from temperature, and we presented a comprehensive measurement review of the optical parameters, such as peak wavelengths for temperatures measured at set temperatures for both laboratory type and portable IRET calibrators, actual optical powers emitted from the cavity of the portable calibrator, and theoretical optical power calculation of the portable calibrator, as well as temperature verification results with a thermal camera. This work also presented the best light-emitting hole radius simulation results, which provide the optical power measurement closest to the actual optical power measurement. Moreover, the theoretically calculated optical power values based on the best light-emitting hole diameter were compared with the measured optical power values. In conclusion, this study provided important information to the reader about possibilities such as temperature calibration and optical power measurement of infrared ear thermometers installed at the TÜBTAK UME. In this study, we clearly demonstrated blackbody radiation, which forms the foundation of modern or quantum physics, by measuring it in the calibrators we produced. In addition, the dissemination of these calibrators in educational institutions,

such as high schools and universities, can clearly explain what blackbody radiation is to students in their basic physics courses and facilitate an easier understanding of the subject. Finally, the information provided here may also be, in some measure, helpful to calibration laboratories that plan to build their own instrumentation.

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