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Message from the Editor,

I am very pleased to inform you that we have published the fourth issue in 2023. As an editor of International Online Journal of Primary Education (IOJPE), this issue is the success of our authors, very valuable reviewers who undertook the rigorous peer review of the manuscripts, and those of the editorial board who devoted their valuable time through the review process. In this respect, I would like to thank to all reviewers, researchers and the editorial board members. The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to International Online Journal of Primary Education (IOJPE). For any suggestions and comments on IOJPE, please do not hesitate to send me e-mail. The countries of the authors contributed to this issue (in alphabetical order): Indonesia, Nigeria, Thailand, and Turkey.

Prof. Dr. Nergüz BULUT SERİN

Editor in Chief

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ENVIRONMENTAL LITERACY AND LEARNING RESOURCES: PANACEA TO EMERGING DRIFT IN COMMUNITIES FOR SUSTAINABLE ENVIRONMENTAL DEVELOPMENT

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Abstract

The study was conducted to create awareness about environmental literacy as part of the 17 sustainable development goals and mitigate environmental challenges at the primary school level. To achieve this, the study examined primary school teachers' perceptions of picture books and animated cartoons as learning resources to create awareness; investigated the learning resources available and employed in primary schools for teaching/learning environmental-related topics; and highlighted the inhibitors of learning resources of picture books and animation cartoons. The study adopted a descriptive research of the survey type using quantitative method. A total of 60 primary school teachers in Ekiti State, Nigeria participated in the study. A questionnaire and a checklist were used for data collection. The data were analyzed through descriptive statistics. Findings revealed that respondents have positive perceptions of picture books and animated cartoons. The findings showed learning resources that were available, unavailable, utilized, and unutilized in teaching and learning of environmental-related topics. The findings also revealed inhibitors to the use of picture books and animation cartoons. It was suggested that primary school teachers should employ picture books and animated cartoons as learner-friendly learning resources to broaden pupils' horizon about environmental sustainability in classrooms at the primary school level.

Keywords: Environmental literacy, picture books, animated cartoons, sustainable development.

INTRODUCTION

The present predicament of global doldrums caused by substantial progress in all facets of life, consumption patterns and ways of living have negative resultant effects on environment and human lives. On September 25, 2015, the United Nations launched the Sustainable Development Goals (SDGs), outlining a set of global objectives with the aim of achieving them by the year 2030 Sustainable development focuses on how the present needs of individuals are met without obstructing the actualization of the needs of the future generations (Brundtland Report, 1987). The emergence of the Sustainable Development Goals (SDGs) at this time is established to tackle all the emerging trends and challenges in the world: end poverty; end hunger; unhealthy life style and well-being; non-inclusive, equitable and quality education; gender inequality; lack of portable drinking water and preservation; lack of sustainable energy; retarded economic growth; problem with climate change; lack of care for the environment (water and land use); and violence and injustice etc.

Presently, the whole world is faced with myriad of problems which are related to economic, social and environmental issues. Developing countries, in particular, grapple with environmental issues such as global warming, inadequate sanitation, deforestation, climate change, and various forms of pollution. Despite these challenges, the environment, encompassing air, water, and land, plays a vital role as a foundational support system and source of materials for achieving developmental goals in communication, industrialization, technology, agriculture, trade and commerce, transportation, and mining. Sethusha (2006) posits that the reasons why people subjugate the physical environment for economic growth is that people believe that the earth has an immeasurable supply of resources for human use for full exploitation to advance human civilization. Also, humans do not see themselves as part of the environment rather as separate entities from the environment, this has led to a presumed biological terrorism, an attempt to subjugate nature to satisfy their needs with little regard for the outcomes (Eneh, 2015). Observation also reveals that lack of awareness of and knowledge on cause-effect on environmental insensitivity and human-induced environmental actions on decimation of ecosystems are other reasons. These reasons have led the world to series of environmental vandalism.

This present study focuses on how primary school teachers through effective learning resources can help pupils actualize SDG 15 (sustainable use of life on land) by creating awareness about how to protect, restore and promote sustainable use of terrestrial ecosystems through waste disposal management, climate protection, anti-pollution sensitization, mitigating misconduct against plants and animals. To stop the looming menace steering at human sustenance and existence, this situation needs urgent and proactive steps at primary education level which is the foundation of other levels of education. One of the proactive steps is creating pupils' awareness about environmental literacy. However, there are limited studies on environmental sustainability and learning resources at the primary school level (Sethusha, 2006). The few ones do no focus on pupils' awareness of environmental literacy and learning resources employed in teaching environmental sustainability in primary schools.

A number of research has been conducted on picture books and animated cartoons by Hsiao and Shih (2015); Kochiyama (2016); He (2018); Chen (2019); Van der Merwe (2020); Olatunde-Aiyedun (2021); Ridha et al. (2022); Eryilmaz and Bozgün (2022). These studies have shown that using picture books and animated cartoons improve learning but none of these studies have reported on the use of picture books and animated cartoons in teaching environmental literacy at primary education level. To address this gap in the literature, this paper proposes picture books and animated cartoons as learning resources to propagate environmental literacy in primary schools as effective means to resolve environmental trends and challenges in communities for sustainable development at the early stage. The paper also seeks to examine the perception of primary school teachers about picture books and animated cartoons; investigate the learning resources available in primary schools; investigate the learning resources employed by primary school teachers; and discuss the inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics.

Research questions

To achieve the stated objectives of this study, the following research questions were raised:

1. What perception do primary school teachers have about picture books and animated cartoons as learning resources for teaching environmental literacy in primary schools?
2. What are the teaching/learning resources available in primary schools for teaching/learning environmental-related topics?
3. What are the teaching/learning resources employed by primary school teachers in teaching environmental-related topics?
4. What are the inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics?

Review of related literature

Environment, environmental education and environmental literacy

The environment is defined as the entire terrain, forms and all the socio-political, cultural and the natural impacts influencing the life and development of an organism (Charuvil, 2000). An ecosystem is the harmonious coexistence of living organisms and nonliving elements within their environment, interacting as interdependent components.

Plants, animals and humans depend on ecosystems to supply food, habitat and natural resources (Mohandas, 2020). When pupils possess correct knowledge of environmental concepts and also acknowledge global impact of environmental abuse resulting from human activities, they may not only see the necessity to support the wellness of the planet and the entire web of relation that connect jointly all life on earth, but they may also individually and collectively find solutions to environmental problems confronting them (Sethusha, 2006). Young ones need to be sensitized about the ecosystem, its effects on the environment vis-à-vis the living and nonliving inhabitants and make young ones answerable to every environmental decision they make.

Education is conceived as the surest means to inculcate right attitude and grand awareness about the environment. Education exposes learners to the causes of environmental degradation and its resultant effects. Education received from divergent approaches to problem solving for an economically, environmentally and socially sustainable world benefits the earth today and future generations (Assa et al., 2021; Tekbiyik & Celik, 2019). For instance, Mohandas (2020) in his study explains how Government Upper Primary School, Varadiyam in Avanoor Panchayat endorsed the inclusion of ecosystem-friendly-sustainability education into school activities through school cleaning up programme, vegetable garden, medicinal plant garden, rain water harvesting system, natural paintings, bird watching, lunch without waste, waste management, eco clubs/nature clubs, and plants and seed distribution to students.

Environmental education is a modern-day necessity. Environmental education is a holistic approach which involves the three learning domains of human development provided to create sensitization, knowledge, values, attitudes, motivation, skills, and the commitment to take actions towards a sustainable future (Charuvil, 2000). The main objective of environmental education is to propagate environmental literacy through problems-solving approach and community participation with the aim of raising useful and dependable individuals who are accountable to the sustainability of the environment and the planet.

Environmental literacy is the ability to comprehend and clarify the various health conditions of environmental systems and take right action to preserve, regenerate or improve the wellness of those systems (Roth, 1992). Environmental literacy helps in raising generation of sensitive persons who appreciate quality environment and will do everything possible to consistently and reasonably put into consideration the needs of human and interests of nature each time actions related to earth usage are to be carried out. Charuvil (2000) expatiates that environmentally literate person is alert to the environment and its resources, has feelings for the interdependence in nature, is responsive to environmental problems, has positive attitudes and values to ecosystem, is committed to protecting the environment, and finds panacea to basic environmental problems.

Coyle (2005) states three basic levels of learning environmental literacy: environmental awareness, personal conduct knowledge and environmental literacy. Environmental awareness is the possession of simple knowledge of environmental concepts such as water, land and air pollution; solid waste; habitat loss; and climate change with limited understanding of its main causes and implications. The second level involves awareness and action that embolden people to get involved in instant individual acts that contribute to environmental advancements such as saving electricity, water and gasoline; buying "green" products and seafood preference; decline of solid waste; and reducing individually-induced-run-off pollution.

Environmental literacy which is the third level begins with organized information, the transmission of the subject's underlying principles, the skills required to inquire into the subject, and an understanding of how to harness that information.

Primary education

Primary education is given in schools to children aged 6 to12 years. It is the basis on which other levels of education are laid. The objectives of primary education is to inculcate permanent literacy, numeracy and the ability to communicate effectively; lay a sound basis for scientific, critical and reflective thinking; instill social moral norms and values in the child; and develop in the child the ability to adapt to the child's changing environment (National Policy on Education; Federal Republic of Nigeria, 2014). The future lies in the hand of young ones hence they should not be left behind in the clamor for sustainable environment. The right type of attitude, values and skills about environmental literacy can be inculcated through participatory and inviting teaching learning resources at the elementary stage. Olatunde-Aiyedun (2021) asserts that in order to realize the goals of primary education, teaching strategies to be adopted should be practical, activity-based, experiential, and Information Technology (IT) supported. Learning at primary education level requires techniques that have the potentials to absorb pupils in multisensory dimensions especially, the use of visual aids, pictorial and graphical-related tools.

Visuals as learning resources

Shabiralyani et al, (2015) define visual aids as materials that help to make lesson clearer and simple to comprehend. Visual aids appeal to the sense of sight through pictures, models, charts, maps, videos, real objects) flannel board, flash cards, bulletin board, chalkboard, slides, overhead projector etc. Visual aids help the teacher to clarify, establish, correlate, and co-ordinate conceptions. Visual aids support learning tasks and make it genuine, exciting, soothing, and meaningful. Every pupil is prone to forgetfulness; however, the correct use of visual learning resources helps pupils retain concepts indelibly.

Pictures books

Pictures are portrayed in different types, sizes, shapes and colours. Pictures are represented by photographs, cartoons, real images and shapes of things which address objects, persons, places and events/phenomenon. Picture book is a coherent and orderly arrangement of pictures coupled with texts and illustrations to transmit information, story, themes, ideas, and emotions. Terwinghe, (2021) notes that a picture book is text, illustrations, total design; a social, cultural, and historic document; and foremost, an experience for a child. As an art form, it hinges on the interdependence of pictures and words, on the simultaneous display of two facing pages, and on the drama of the turning page. Serafini (2014) differentiates picture books as multimodal ensembles. Three main parts of printed multimodal ensembles are text, visual imagery (charts, drawings, photographs, tables, pictures) and design (typography, edges and other graphic elements). Other examples are nature books, animal books, counting books, miscellaneous easy to-read books, alphabet books, and concept books.

Picture books evoke pupils' empathy, motivate, compel and arrest the attention of pupils whenever they are taught environmental-related topic. Through picture books, information about climate change, greenhouse effect, ozone depletion, deforestation etc. could be transmitted by activating their critical thinking, creative, interpersonal and rational skills. The developmental stage of every child is monumental. Their emotion, psychology, education, and culture are developed through sight, touching, hearing, and smelling senses. The knowledge acquired or missed during this stage can influence individuals' perceptions, psyche, and beliefs about the world. Since children's minds are porous and tender, picture books fit in as appropriate literary, creative, motivational, and visual mechanisms capable to arrest learners' attention and interests about environment before onward transmission of the sensory information to the brain for processing. Utilizing picture books can be a valuable effort in teaching ecological awareness and instilling eco-critical messages

in the hearts and minds of young individuals. Through picture books, pupils' understanding of critical environmental issues of Sustainable Development Goal 15 can be taught.

Studies on picture books

Studies have been conducted on the effects of picture books on learners in the classroom, however much has not been written on the environment. Hsiao and Shih (2015) investigated preschool teachers' use of picture books for teaching environmental concepts and the conservation of resources. The result showed that picture book helped children to know why and how to save resources practically, helped them to reduce the use of water spontaneously when washing hands, even without a teacher, it served as reminder and instilled in them to immediately turn off the faucet after washing their hands. Chen (2019) discussed the need to employ picture books in English teaching. The research findings indicated that picture books not only enhanced students' motivation to learn but also facilitated the acquisition of additional expressions and the exploration of compelling new narratives. This compensates for the shortcomings found in traditional textbooks. He (2018) examined a detailed discussion to the teaching practice of English reading based on picture story books in primary schools. The findings showed that teaching English reading through picture story books developed students' enthusiasm and has improved their learning interest. Although these studies are limited, yet the study showed that picture books gave students the opportunity to learn some universal aspects of the human conditions with which learners can make meaningful connections. Nevertheless, these studies have not related the use of picture books as a strategy for teaching environmental literacy at primary schools.

Animated cartoons

Cartoons are daily amusing stories in picture form, which could be on a paper or in a video, with or without reproduction of sounds, representing the day-to-day activities of people. Cartoons help to simplify difficult subjects in form of teaching or entertaining pupils (Cosby, 2003). Eneh (2015) explains that cartoons are characterized by presentation of diverse notions about a concept, the use of visual images, less use of written language, and contexts that are common with children. Animated cartoons are presented in a way in which people and animals are made to move and talk. Animated learning contents can be harnessed for a number of purposes in schools: explaining complicated terminologies in an easy-to-comprehend form; supporting the imagination of children; presenting concepts from an entirely different angle; demonstrating certain concepts to pupils; stimulating pupils' sense organs; and invigorating critical thinking that may lead to reconstruction of ideas (Eneh, 2015; Jeetha & Krishna, 2021). Since children within the age range of 5 and teens are lovers of animated cartoons, using cartoons to teach environmental literacy could be an effective tool to change their attitude, improve their knowledge and sustain their interest about environmental literacy at the primary level.

Studies on animated cartoons

Studies have been conducted on the effect of animated cartoons on learners in the classroom, however much has not been written on the environment. Ridha et al. (2022) examined the influence of animated videos on vocabulary learning in an effort to improve students' vocabulary at the Noble Private Technical Institute. Majority of students in the study agreed that "animated videos aid in assimilation; make studying more interesting; aid in vocabulary development; make English learning more productive; and improve students' comprehension and assimilation of terminology". Olatunde-Aiyedun (2021) investigated the interaction effect of animation teaching strategy on secondary school students' achievement in climate change. The findings of this study revealed that climate change could be taught effectively through animation teaching strategy and can as well enhance students' achievement in climate change-related topics. Eryilmaz and Bozgün (2022) investigated the effect of using cartoons on primary school students' academic achievement in Social Studies courses in Turkey. It was concluded in the study that cartoons can be used as another viable teaching tools in Social Studies courses.

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Van der Merwe (2020) focused on the use of interactive storytelling, cartoon animation and educational gaming to communicate biblical messages to preschool children. The study discovered that in a postmodern era, parents, the church and Christian nurseries, nurseries, or any other religious education agents are encouraged to explore these modes of teaching of the Gospel to preschool children. Şahin and Arslan (2022) explored the effect of an animated cartoon series on middle school students' on students' environmental literacy sub-dimensions using "Su Elçileri" as a case study. The findings indicated that "exposure to the "Su Elçileri" animated cartoon series resulted in significantly better improvement in environmentally responsible behaviors and the attitude toward environmental problems than the control group". The findings draw attention to animated cartoons as a teaching strategy in environmental education and science education, especially in younger age groups. Eneh (2015) investigated the effect of cartoons on pupils' interest and achievement in environmental education in Basic Science and Technology. The study showed that pupils' achievement and interest environmental education was enhanced by the use of cartoons. Pupils taught with cartoons performed better than those who were not exposed to the treatment. These studies have revealed that the use of animated cartoons is an effective strategy for teaching and learning. However, the focus of these studies have not centered on sensitizing pupils on environmental literacy through the use of animated cartoons but this present study seeks to achieve this by sensitizing pupils on environmental literacy through the use of animated cartoons.

Teaching sustainable environmental development through an animated cartoon Titled "Tomorrow"
The animated cartoon "Tomorrow" (English Version) is a short animated cartoon about the climate crisis. It is the intellectual property of Kazi Media Limited, Bangladesh. The animated cartoon was culled from the link.

Figure 1. The cartoon Ratul.

The story focuses on the cartoon Ratul, a young boy in Bangladesh, who embarks on a trip with his father on a bicycle. Ratul shows his repugnance at nature while his father attests to his love for butterflies, trees, rivers, oceans and natural things and frowns at activities that will harm them.

Figure 2. Ratul on a trip with his father discussing their environment.

They both meet some villagers who are sharing their thoughts on the news heard on the Internet that they are to remove their houses away from the sea shore. Ratul's father explains that need to relocate because the sea level is rising and floods and cyclones are occurring almost every year. This will affect crops and human beings will not be able to survive. The earth is getting warmer and that is why these havocs are happening because of climate change.

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Figure 3. Villagers discussing flood.

Figure 4. Ratul listens to what climate change means.

At night, Ratul dreams. He encounters a supernatural being who shows him two different visions about the future of ecosystem. The first scenario shows what is currently happening around the village. The dream reveals the category of people like Ratul who do not take care for the Mother earth but want to destroy the world by harming and heating the earth through burning of fuel and cutting trees; and how the factories, for many centuries, have been growing and expanding through the use of fossil fuel.

Figure 5. A supernatural being discusses with Ratul.

Figure 6. Factories heating the earth through the use of fossil fuel.

The smoke from these fossil fuels causes air pollution which has caused many people in the larger cities to suffer from asthma and other diseases.

Figure 7. An ambulance conveying asthmatic patients.

Figure 8. A flooded village.

Nothing in this world will survive, everything will be destroyed by the greenhouse effect if people of earth do not stop harming the earth because there will be flood, famine, hunger, death and depletion of ozone layer etc.

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Figure 9. The rising of the sea level.

Figure 10. Children suffering from hunger.

Ratul wants to know what will happen in the future if people stop harming the earth. The second scenario reveals the future where everyone decides to help change the planet. By then, the world has replaced fossil fuels with renewable energy and the catastrophe of rising sea levels has been prevented.

Figure 11. Factories are run through windmills.

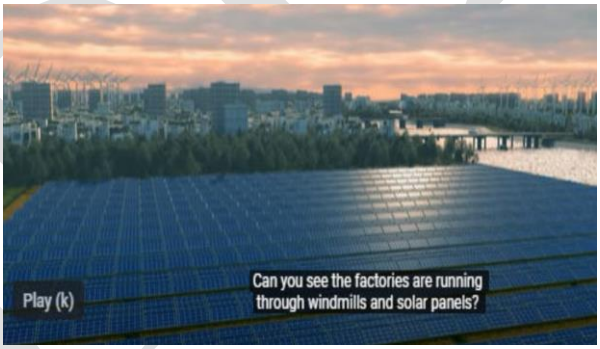

Figure 12. Factories are run through solar panels.

Factories are run through windmills and solar panels since fossil fuel are no longer burnt, the greenhouse effect is no more and the earth has become soft, green and livable again.

Figure 13. Habitable environment.

Figure 14. A supernatural being advises Ratul to be a change agent.

Ratul wakes up from his dream and decides to save his country, Bangladesh, from going into extinction. He determines that their air, water and land must not be ruined.

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Figure 15. Ratul asks how he can save his country.

Figure 16. Ratul's father reveals how to be a change agent.

His father tells him how to save the air, land, water and other ecosystems by: i. educating ourselves individually; ii. educating people around us that all should take responsibility; iii. government should take decisive steps by making and implementing policies that will protect the earth such as putting taxes on fossil fuels and the tax money should be spent subsidizing renewable energy iv. all kinds of pollution, especially water and air, has to be reduced and eventually eliminated.

Figure 17. A group of individuals campaigning.

Figure 18. A boy advocating taxes on fossil fuels.

Ratul educates his friends in the school and on the social media on the dangers of global warming and its harmful effects on our community, our health and our climate.

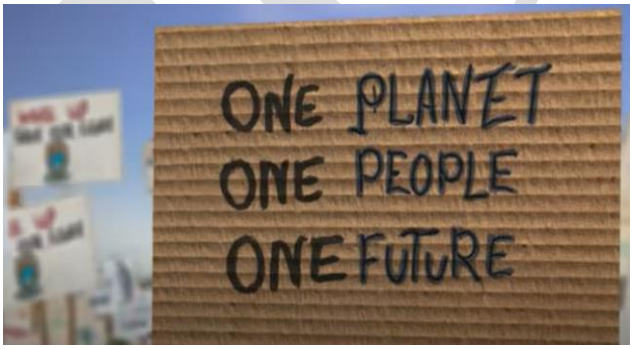

Figure 19. A placard on environmental sustainability.

Figure 20. Ratul and his friends at school discussing climate change.

Ratul and the community begin public advocacy with a peaceful protest on government's negligence on climate change.

Figure 21. A peaceful protest on climate change.

After twenty-five years, Ratul has become a grown up. He is invited to address the public from all countries of the world on how he and his countrymen actualized their dream about environmental sustainability of their beloved country. Now, in his country from primary schools to tertiary institutions, both literates and illiterates, companies, and government establishments etc. have become responsible and alert to their environment and will not relent at sustaining their ecosystem.

Figure 22. Ratul addresses the public from all countries of the world.

Ratul and his people have become environmental-literates, sensitive to their environment, responsible to the decisions they make about their environment and achieved environmental sustainable development because of individual, state and global-led solutions.

METHOD

Research Design

The study adopted a descriptive research of the survey type using quantitative method of data gathering. Descriptive research of the survey type was adjudged appropriate for the study because the purpose was to gather information on the existing situation and describe the phenomenon as given by the respondents.

Participants

The respondents were randomly drawn from primary schools in Ekiti State, Nigeria. Through simple random sampling technique, a total of 60 primary school teachers were selected and participated in the study.

Research Instruments and Procedure

Two research instruments, a questionnaire and a checklist, were used for data collection. Sixty-five questionnaires were distributed but 60 questionnaires were completed and returned. Respondents were given adequate time to fill out the questionnaires. The questionnaire was titled "Teachers' notions about picture books and animated cartoons as learning resources in teaching environmental literacy in primary schools." The questionnaire was divided into two parts. Part A focused on the demographic information of the respondents while Part B was categorized into Group A and Group B. Group A addressed teachers'

perceptions of picture books and animated cartoons as learning resources for teaching environmental-related topics in primary schools with 8 items. This part was measured using a four-point-Likert-type scale of Strongly Agree (SA), Agree (A), Strongly Disagree (D), and Strongly Disagree (SD). Group B dealt with constraints faced by primary school teachers in the use of picture books and animated cartoons for teaching environmental literacy. This part was measured using a "Yes or No" format with 16 items.

The second instrument was a checklist. The instrument was subdivided into Aspect A and Aspect B. Aspect A investigated the teaching/learning resources available in primary schools for teaching/learning environmental-related topics. In this part, the respondents ticked 'available' or 'not available' as applicable to the teaching/learning resources available in primary schools for teaching/learning environmental-related topics. In Aspect B, the focus was on learning resources employed by primary school teachers in teaching environmental-related topics. The respondents ticked 'never', 'rarely', 'sometimes' or 'always' as applicable to the teaching learning resources they use during teaching and learning of environmental-related topics. The data were analyzed through frequency and percentage while the hypothesis was analyzed using inferential statistics of t-test.

Validity and Reliability of the Instruments

The instruments were self-constructed. Experts in testing, language, primary education, and measurement and evaluation ascertained the face and content validity of the instrument. To ensure reliability, the questionnaire was administered by research assistants on 25 primary school teachers who were not part of the selected sample of the study. Face to face survey for the distribution of the instruments for data collection was employed. Pearson's Product Moment Correlation was employed to measure the reliability after a test-retest was conducted and a reliability coefficient of .76 was obtained.

RESULTS

Research Question 1: What perception do primary school teachers have about picture books and animated cartoons as learning resources for teaching environmental literacy in primary schools?

Table 1 reveals that 100% of the respondents perceived that picture books and animated cartoons are effective means of teaching primary pupils, while 57% of the respondents opined that picture books and animated cartoons foster clarity and comprehension of lessons.

Table 1. Primary school teachers' perceptions of picture books and animated cartoons as learning resources for teaching environmental literacy in primary schools.

S/N	Statement	Strongly Agree	Agree	Strongly Disagree	Disagree
1	I know what picture books and animated cartoons mean in teaching primary pupils	35 (58.3%)	25 (41.7%)	-	-
2	Picture books and animated cartoons help to make lessons clearer and easier to understand	28 (46.7%)	29 (48.3%)	2 (3.3%)	1 (1.7%)
3	Picture books and animated cartoons help teachers explain and connect ideas to make the process of learning more interesting, enjoyable, persuasive and effective	27 (45%)	29 (48.3%)	1 (1.7%)	3 (5%)
4	Picture books and animated cartoons help pupils recall, remember and retain information for a longer period of time	26 (43.3%)	28 (46.7%)	2 (3.3%)	4 (6.7%)
5	Picture books and animated cartoons increase pupils' vocabulary and concepts about the environment	33 (55%)	24 (40%)	2 (3.3%)	1 (1.7%)
6	Picture books and animated cartoons derail pupils by treating topics that are outside the scope of the lesson	11 (18.3%)	6 (10%)	22(36.7%)	21 (35%)

Table 1 (Continued). Primary school teachers' perceptions of picture books and animated cartoons as learning resources for teaching environmental literacy in primary schools.

S/N	Statement	Strongly Agree	Agree	Strongly Disagree	Disagree
7	Although, picture books and animated cartoons are fun-filled but they are time-consuming and energy sapping	27 (45%)	24 (40%)	5 (8.3%)	4 (6.7%)
8	Picture books and animated cartoons could be distracting to pupils and make the class rowdy	24 (40%)	25 (41.7%)	5 (8.3%)	6 (10%)

Fifty-six teachers asserted that the use of picture books and animated cartoons develop pupils' interest in the lesson and help them connect ideas in the lesson to their personal experience, while 54% of the teachers believed that picture books and animated cartoons assist pupils to recall, remember and retain information for a longer period of time. Fifty-seven teachers noted that pupils' vocabulary and concepts about the environment could be increased through the use of picture books and animated cartoons. However, forty-three of the respondents affirmed that picture books and animated cartoons could be a derailment to the scope of the lesson. Although, fifty-one teachers agreed that picture books and animated cartoons are fun-filled but they are time-consuming and energy sapping. Also, forty-nine respondents opined that picture books and animated cartoons could be distracting to pupils and make the class rowdy.

Research Question 2: What are the teaching/learning resources available in primary schools for teaching/learning environmental-related topics?

Table 2 reveals that real objects 38(63.3%), diagrams 46(76.7%), illustrations 60(100%), drawings 51(85%), cartoons in recommended textbooks 56(93.3%), charts 53(88.3%), flash cards 52(86.7%), pictures 40(66.7%), and pictures in recommended textbooks 60(100%) are readily available in schools as learning resources employed in teaching environmental-related topics.

Table 2. Teaching/learning resources available in primary schools for teaching/learning environmental-related topics.

S/N	Visual Aids	Available	Not Available
1	Real objects	38 (63.3%)	22 (36.7%)
2	Diagrams	46 (76.7%)	14 (23.3%)
3	Photographs	28 (46.7%)	32 (53.3%)
4	Illustrations	60 (100%)	-
5	Drawings	51 (85%)	9 (15%)
6	Cartoons in recommended textbooks	56 (93.3%)	4 (6.7%)
7	Cartoons downloaded online or from other means aside recommended textbooks	5 (8.3%)	55 (91.7%)
8	Animated cartoons	3 (5%)	57 (95%)
9	Charts	53 (88.3%)	7 (11.7%)
10	Flash cards	52 (86.7%)	8 (13.3%)
11	Overhead projector	6 (10%)	54 (90%)
12	Videos/Films	8 (13.3%)	52 (86.7%)
13	Painting	35 (58.3%)	25 (41.7%)
14	Pictures	40 (66.7%)	20 (33.3%)
15	Picture books	11 (18.3%)	49 (81.7%)
16	Pictures in recommended textbooks	60 (100%)	-
17	Picture books downloaded online or from other means aside recommended textbooks	4 (5.7%)	56 (93.3%)

Research Question 3: What are the teaching/learning resources employed by primary school teachers in teaching environmental-related topics?

Table 3 shows that during the teaching/learning of lessons that focused on environmental-related topics, 37 respondents affirmed that they hardly use real object, 45 teachers utilized diagrams, 20 teachers taught with

photographs, 60 teachers affirmed that they always used illustrations, 55 respondents made use of drawings, 60 respondents always employed cartoons in recommended textbooks, 51 teachers did not download cartoons online or from other means aside cartoons in recommended textbooks, 54 teachers did not use animated cartoons, 57 teachers utilized charts, 50 teachers did not employ overhead projector, 54 teachers affirmed that they did not make use of videos/films, 38 teachers made use of painting, 48 teachers do not use picture books, 60 teachers make use of pictures in recommended textbooks, and 48 teachers did not download pictures online or from other means aside pictures in recommended textbooks. For painting, 30% of the teachers utilized painting while 30% did not.

Table 3. Teaching/learning resources employed by primary school teachers in teaching environmental-related topic.

S/N	Visual Aids	Never	Rarely	Sometimes	Always
1	Real objects	25 (41.7%)	12 (20%)	20 (33.3%)	3 (5%)
2	Diagrams	10 (16.7%)	5 (8.3%)	23 (38.3%)	22 (36.7%)
3	Photographs	19 (31.7%)	21 (35%)	12 (20%)	8 (13.3%)
4	Illustrations	-	-	-	60 (100%)
5	Drawings	1 (1.7%)	4 (6.7%)	32 (53.3%)	23 (38.3%)
6	Cartoons in recommended textbooks	-	-	-	60 (100%)
7	Cartoons downloaded online or from other means aside recommended textbooks	36 (60%)	15 (25%)	5 (8.3%)	4 (6.7%)
8	Animated cartoons	52 (86.7%)	2 (3.3%)	2 (3.3%)	4 (6.7%)
9	Charts	1 (1.7%)	2 (3.3%)	44 (73.3%)	13 (21.7%)
10	Flash cards	6 (10%)	4 (6.7%)	45 (75%)	5 (8.3%)
11	Overhead projector	41 (68.3%)	9 (15%)	8 (13.3%)	2 (3.3%)
12	Videos/Films	51 (85%)	3 (5%)	2 (3.3%)	4 (6.7%)
13	Painting	15 (25%)	15 (25%)	15 (25%)	15 (25%)
14	Pictures	12 (20%)	10 (16.7%)	19 (31.7%)	19 (31.7%)
15	Picture books	46 (76.7%)	2 (3.3%)	9 (15%)	3 (5%)
16	Pictures in recommended textbooks	-	-	-	60 (100%)
17	Picture books downloaded online or from other means aside recommended textbooks	33 (55%)	15 (25%)	8 (13.3%)	4 (6.7%)

Research Question 4: What are the inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics?

Table 4 reveals the various inhibitions faced by primary school teachers whenever they are to teach environmental-related topics.

Table 4. Inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics.

S/N	Constraints bedeviling the use of picture books and animated cartoons	Yes	No
1	Distract pupils from learning	40 (66.7%)	20 (33.3%)
2	Cost-consuming	55 (91.7%)	5 (8.3%)
3	Some online picture books and animated cartoons require a lot of bandwidth	58 (96.7%)	2 (3.33%)
4	Not beginner-friendly	3 (5%)	57 (95%)
5	Lack of technological know-how	15 (25%)	45 (75%)
6	Large class size	30 (50%)	30 (50%)
7	Insufficient/lack of picture books and animated cartoons	60 (100%)	-
8	Unwillingness by teachers/poor disposition to the use of picture books and animated cartoons	10 (16.7%)	50 (83.3%)
9	Time consuming	48 (80%)	12 (20%)
10	Lack of awareness and knowledge of picture books and animated cartoons	8 (13.3%)	52 (86.7%)

Table 4 (Continued). Inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics.

S/N	Constraints bedeviling the use of picture books and animated cartoons	Yes	No
11	Lack of/Inadequate technical and infrastructural facilities	52 (86.7%)	8 (13.3%)
12	Lack of gadgets, ICT tools, electronic and other allied facilities	55 (91.7%)	5 (8.3%)
13	Textbooks have sufficient picture books and animated cartoons	43 (71.7%)	17 (28.3%)
14	Paucity of fund	58 (96.7%)	2 (3.3%)
15	Teachers' inability to improvise	40 (66.7%)	20 (33.3%)
16	Erratic and unreliable internet connection and unstable power supply	53 (88.3%)	7 (11.7%)

The respondents 66.7% opined that pupils easily get distracted, 91.7% noted that the learning resources are cost-consuming, 96.7% noted that some online picture books and animated cartoons require a lot of bandwidth, 95% noted that they are not beginner-friendly, all the respondents (100%) claimed that insufficient/lack of picture books and animated cartoons deterred them, 80% noted that time consumption of the learning resources hindered them, 86.7% would have loved to utilize the learning resources but lack of/inadequate technical and infrastructural facilities is an obstacle, 91.7% opined that lack of gadgets, ICT tools, electronic and other related facilities affect them, 71.7% claimed that they teach with recommended textbooks since they have sufficient picture books and animated cartoons, 96.7% agreed that lack of fund to procure necessary facilities is an impediment, 66.7% claimed that most teachers are unable to improvise in classes. Respondents, 88.3% responded that erratic and unreliable internet connection and unstable power supply are noted to be problems. Nevertheless, 95% said the learning resources are beginner-friendly, 75% reported that they did not lack technological know-how, 83.3% affirmed that they were not indisposed to use of picture books and animated cartoons, 86.7% affirmed that they are aware of and knowledgeable about picture books and animated cartoons.

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

Respondents in this present study have positive perceptions of picture books and animated cartoons and have shown that they are aware and knowledgeable about what picture books and animated cartoons are, their usefulness in teaching/learning of environmental literacy, the positive impacts they have on pupils' learning outcomes, and their negative resultant effects. Birisci et al. (2010) corroborated the findings that teachers are knowledgeable about cartoons and acknowledge that cartoons make lessons more interesting and entertaining, improve leaners' critical thinking skills and make them develop positive attitude towards lesson. More so, Awasthi (2014) also agreed that visual aids activate all the sensory organs of children and make learning easy, effective and permanent. In addition, Shreesha and Tyagi (2016) affirmed that animation instructional materials help to teach and visualize complicated topics in a simple way, catchy tunes endear learners to master the key words and foster students' academic performance.

Findings revealed that real objects, diagrams, illustrations, drawings, cartoons in recommended textbooks, charts, pictures, flash cards, painting, and pictures in recommended textbooks are readily available for teaching/learning of environmental literacy while cartoons downloaded online or from other means aside recommended textbooks, picture books, animated cartoons, overhead projector, videos/films, and picture books downloaded online or from other means aside recommended textbooks are unavailable. A study conducted by Sam-Kayode et al. (2020), it was noted that learning resources were available but not adequate for teaching and learning, however, the available ones were not adequately utilized.

The findings further show that real objects, photographs, cartoons downloaded online or from other means aside recommended textbooks, animated cartoons, picture books, overhead projector, videos/films, picture books downloaded online or from other means aside recommended textbooks are unpopular and not utilized in teaching and learning of environmental-related topics. Nevertheless, the most widely embraced and utilized educational resources include diagrams, pictures, illustrations, drawings, cartoons in recommended

textbooks, as well as charts and pictures featured in recommended textbooks. It could be implied from the findings that picture books and animated cartoons are not utilized whenever topics related to environment are taught. It is observed that the most popular and utilized learning resources do not appeal to all the sensory organs of children unlike picture books and animated cartoons. The findings of Shabiralyani (2015) is in tandem with the findings of this study that text books and wall chart are the most usual learning resources used by teachers. Furthermore, Shabiralyani (2015) revealed that the use of ICT tools and the Internet where teachers can download visual learning resources were not yet common and also, teachers and learners did not use visual aids teaching/learning resources such as CDs, TV, and computers because they were not available in some schools. In contrast, Huong and Chuyen (2020) showed in their study that PowerPoint presentations, pictures and videos were the most favorable teaching and learning aids.

Findings in the study have shown the various constraints bedeviling the use of picture books and animated cartoons. By implication, lack of fund; dearth of technical and infrastructural facilities; lack of gadgets, ICT tools, electronic and other allied facilities; irregular and unreliable internet connection, and unstable power supply are constraints to the utilization of picture books and animated cartoons in classrooms. Pam et al. (2020) noted in their study that inadequacy and non-availability of visual aids are apparently evident in primary schools and other reasons for non-utilization of visual aids are non-provision of adequate fund by the government to purchase visual aids, lack of time management by teachers, problem with operation of the audio-visual aids, dearth of storage facilities, teachers' inability to improvise (Shabiralyani 2015; Pam et al., 2020; Enekwe et al., 2021). Also, Awasthi (2014) found out that primary school teachers were not trained to use visual aids and teachers' attitude towards the use of audio-visuals is appalling. Also Shabiralyani (2015) found out that most teachers could not improvise teaching/learning resources for their teaching, there are very limited number of teachers who are trained and skilled in the use of ICT, and hence these teachers are unable to decide on software packages utilized. Respondents in the study conducted by George and Ige (2022) responded that dearth of policy on the use of instructional materials and irregular power supply are banes to the use of learning resources. However, Sam-Kayode et al. (2020) established that teachers demonstrated willingness in their dispositions to the use of materials in teaching and learning. Huong and Chuyen (2020) affirmed that teachers had positive perceptions of the use of multimedia visual aids in English language teaching in spite that there were some problems with the use of this type of visual aids.

Conclusion

The prevalent agitation about the rise in human exploitation and degeneration of natural environment continues unabated. The earth is presently in emergent need of monumental efforts such as environmental literacy to protect its environment. Education is key to launch a campaign to change public perception of environmental abuse; protection of natural resources; revealing environmental problems; providing solutions, making eco-friendly decisions; and living sustainable lifestyles. To achieve this, environmental literacy should start in earnest, at the foundational level, the primary education level. It is therefore necessary to consider an effective learning resources that could help increase and spread knowledge about sustainable environmental development at primary education level. Two learning resources, picture books and animated cartoons, are presented as learning resources needed to create awareness and achieve environmental sustainable development, and as well employed as remedies to various trends and challenges to sustainable development in our society with a view to building environmentally responsible generation.

Recommendations

To raise environmentally-responsible generation and tackle various trends and challenges to sustainable development at primary education level, the following suggestions are raised;

- ✓ environmental-related topics should decisively treat issues related to sensitivity and awareness about environmental issues, environmental protection, action, and responsibilities,

- ✓ children are not robots, hence their ideas about environment should be welcome, harnessed and built upon. Their ideas could serve as windows into from where teachers can probe into their views for necessary corrections and appraisal,
- ✓ learning resources that would broaden children's horizon about the environment be made available and accessible in schools,
- ✓ picture books and animated cartoons that foster full involvement of pupils on environmental issues like environmental protection, action, and responsibility be encouraged in the class,
- ✓ learning resources and tasks that would broaden children's horizon, correct their misconceptions and sharpen their conceptions about the environment be made available and accessible,
- ✓ schools, philanthropists, education stakeholders and government must provide schools with audiovisual rooms, technological equipment, visual aids such as computers, projection screen, TVs, video projector, etc.),
- ✓ stable Internet connectivity, regular power supply and other allied facilities that support the teaching and the learning of environmental-related topics aside the available ones in the study be encouraged,
- ✓ schools and immediate communities should encourage and organize extracurricular activities and environmental campaigns that could help pupils know more about their environment such as tree planting advocacy, recycling drive, cleaning campaigns, and vegetable gardens plantation project,
- ✓ literacy clubs, extra-curricular activities and environmental promotional clubs should be formed. These clubs will see to the sustenance of environmental literacy and activities in the school.

Limitations

Limited number of sample, 60 respondents, participated in the study, hence makes the study less representative and cannot be used for generalizations. Further study could be carried out on the same topic, but experimental research gives the research a new and interesting dimension.

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Ethics and Conflict of Interest

The researchers sought and obtained the consent of the respondents. Respondents' anonymity and confidentiality were guaranteed because respondents' identities were not disclosed under any guise. Participation was made voluntary. Ethical procedures were strictly adhered to during the research. Authors declare that there is no conflict of interest whatsoever. The authors contributed immensely to the overall development of the study and agreed with the results and conclusions.

REFERENCES

Assa, A. F., Rumambi, F. J., & Wibisono, C. (2021). Teaching strategy of ecosystems in Jakarta for elementary school students. *Utopía y Praxis Latinoamericana*, *26*(3), 129-139. https://doi.org/10.5281/zenodo.4969718

Awasthi, D. (2014). Utilising audio visual aids to make learning easy and effective in primary education. *International Journal of Scientific Research*, *3*(8), 62-63.

Birisci, S., Metin, M., & Karakas, M. (2010). Pre-service elementary teachers' views on concept cartoons: A sample from Turkey. *Middle-East Journal of Scientific Research, 5*(2), 91-97.

Bruntland, G. (1987). *Our common future: The world commission on environment and development*, *Oxford*: Oxford University Press.

Charuvil, P. C. (2000). *The nature and measurement of environmental literacy for sustainability*. (Unpublished doctoral dissertation). University of South Africa. https://core.ac.uk/download/pdf/43175641.pdf

Chen, J. (2019). Employing English picture books in classroom teaching: taking a suburban area in Mainland China as the study context. *The International Academic Forum*. https://papers.iafor.org/wp-content/uploads/papers/ace2019/ACE2019_53346.pdf

Cosby, B. (2003). *The crusading comics is changing the face of education*. Retrieved on 1, no.1 (2003): 06.

Coyle, K. (2005). Environmental literacy in America: What ten years of NEETF/Roper research and related studies say about environmental literacy in the US. *National Environmental Education & Training Foundation*, https://files.eric.ed.gov/fulltext/ED522820.pdf

Eneh, A. N. (2015). *Effect of cartoons on pupils' interest and achievement in environmental education in basic science and technology*. (Unpublished doctoral dissertation). University of Nigeria, Nsukka.

Enekwe, R. C., Vero, M., & Osuji, E. (2021). Challenges and solutions in the utilization of audio-visual materials in teaching social studies in Upper Basic Schools in Udi Education Zone, Enugu State, Nigeria. *British International Journal of Education and Social Sciences*, *8*(4), 1-18.

Eryilmaz, Ö., & Bozgün, K. (2022). The effect of using cartoons on primary school students' academic achievement in Social Studies courses in Turkey: A meta-analysis study. *Human, Technologies and Quality of Education,* 686-697.

Federal Government of Nigeria (FGN) (2014). *National policy on education*. 6th Ed. Abuja: Nigerian Educational Research and Development.

George, A. P., & Ige, N. A. (2022). A survey study of the use of audio-visual resources amongst pre-service teachers in Lagos State Colleges of Education. *Acad. Res. J. Psychol. Counsel, 10*(1), 1-13.

He, F. (2018). Practice research on English reading teaching based on picture story books in primary school. *Advances in Computer Science Research*, 83, 154-157.

Hsiao, C., & Pei-Yu Shih, P. (2015). The impact of using picture books with preschool students in Taiwan on the teaching of environmental concepts. *International Education Studies, 8*(3), 14-23.

Huong, T. M., & Chuyen, N. H. (2020). Teachers' perception on the use of multimedia visual aids in English language teaching. *IJARIIE, 6*(3), 1911-1915.

Jeetha, J., & Krishna, P. (2021). Animation for learning: enhancement of learning through animation: A review of literature. *International Research Journal of Modernization in Engineering Technology and Science*, *3*(1), 1051-1071.

Kochiyama, A. (2016). Teaching English with picture books: current challenges and possible solutions in English education in Japan. *International Journal of Education, 9*(1), 37-43. https://doi.org/10.17509/ije.v9i1.3716

Mohandas, V. K. (2020). Strategies for preserving the ecosystem in government upper primary school Varadiyam, Thrissur, Kerala: A case study. *Acad. J. Educ. Res*. *8*(12), 514-516. https://doi.org/10.15413/ajer.2020.0147

Olatunde-Aiyedun, T. G (2021). Interaction effect of animation teaching strategy on students' achievement in climate change. *Journal of Ethics and Diversity in International Communication*, *1*(6), 1-15.

Pam, C. G., Adhiambo, J. M., & Mwalw'a, S. (2020). Factors influencing teachers' effective use of visual aids in enhancing the teaching and learning process in public primary schools, Barkin-ladi, Plateau State, Nigeria. *European Journal of Education Studies, 7*(11), 582-603.

Ridha, S. K., Bostanci, H. B., & Kurt, M. (2022). Using animated videos to enhance vocabulary learning at the Noble Private Technical Institute (NPTI) in Northern Iraq/Erbil. *Sustainability*, *14*, 7002. https://doi.org/10.3390/su14127002

Roth, C. E. (1992). *Environmental Literacy: Its roots, evolution, and directions in the1990s.Columbus,* OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Education. https://files.eric.ed.gov/fulltext/ED351201.pdf

Şahin, E. G., & Arslan, H. Ö. (2022). The effects of animated cartoon series on 5th grade students' environmental literacy sub-dimensions: The case of "Su Elçileri". *Bartın University Journal of Faculty of Education, 11(*2), 432-445. https://doi.org/10.14686/buefad.974917

Sam-Kayode, C. O., Akuche, U. E., & Mustapha, B. A. (2020). Availability, adequacy and utilization of audio-visual materials for teaching and learning of Mathematics in a local government area of Oyo State. *Ife Social Sciences Review, 28*(1), 139-148.

Serafini, F. (2014). *Reading the visual: An introduction to teaching multimodal literacy*. Teachers College Press. https://journals.library.brocku.ca/brocked/index.php.home/article/view/503/297

Sethusha, M. J. (2006). *How primary school learners conceptualize the environment and environmental education.* (Unpublished doctoral dissertation). University of Pretoria.

Shabiralyani, G., Hasan, K. S., Hamad, N., & Iqba, N. (2015). Impact of visual aids in enhancing the learning process case research: District Dera Ghazi Khan. *Journal of Education and Practice, 6*(19), 226-233.

Shreesha, M., & Tyagi, S. K. (2016). Does animation facilitate better learning in primary education? A comparative study of three different subjects. *Creative Education, 7*, 1800-1809. http://dx.doi.org/10.4236/ce.2016.713183

Tekbiyik, A., & Celik, M. (2019). Education for sustainable development in primary school: Improvement of students' ecocriticism skills. *Journal of Education in Science, Environment and Health, 5*(2), 178-191. https://doi.org/10.21891/jeseh.568716

Terwinghe, M. (2021). *The use of picture books in primary school classrooms: Discovering new ways of curricular integration.* A short dissertation Master of Teaching (9SP) submitted to Ghent University. https://libstore.ugent.be/fulltxt/RUG01/003/012/568/RUG01-003012568_2021_0001_AC.pdf

van der Merwe, D. G. (2020). The use of interactive storytelling, cartoon animation and educational gaming to communicate the biblical message to preschool children. *HTS Teologiese Studies/Theological Studies*, 76(2), a6074. https://doi.org/10.4102/hts.v76i2.6074

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INTEGRATION OF INDONESIAN CULTURE IN THE DIDACTIC DESIGN OF THE CONCEPT OF FRACTIONS IN ELEMENTARY SCHOOLS

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Abstract

This study aims to develop a didactic design using Engklek games to teach the concept of fractions in elementary schools. This study combines a cultural approach, namely Engklek games with mathematics in the concept of fractions. This study used didactical design research, with 2 research subjects, namely 20 students in grade 5 for learning obstacles as the basis for making didactic designs, and 50 students in grade 4 to determine the impact of implementing didactic designs. Data collection techniques used are tests, interviews, and observation. The data analysis technique uses a qualitative method to see learning obstacles in students and a quantitative method (descriptive and inferential statistics) to determine the impact of didactic design implementation. Based on the results of the Mann-Whitney test that the sig. is .000, meaning that there is a difference in students' mean scores on the concept of fractions before and after the implementation of the didactic design, this indicates that there is a positive influence on students getting the implementation of the didactic design using the Engklek game on the concept of fractions in elementary schools. This research contributes to education in an effort to create effective and meaningful learning by involving real contexts in real life through elements of culture.

Keywords: Ethnomathematics, Engklek games, didactic design, fraction concept.

INTRODUCTION

An important subject to study at all levels is mathematics (Subrahmanyam, 2021), and it relates to other subjects (Lingefjärd & Ahmet, 2022; Tekin, 2022) and will be very useful in work (Escalera-Chávez et al, 2021). Mathematics provides many benefits, assists students in practicing creative and critical thinking, and can change their perspective on things (Baykul, 2009), this is also explained by Schoenfel (1989) in his research on 230 students, that students believe mathematics is not just memorizing but mathematics is a discipline that is creative, useful and teaches how to think. Thus, one of the keys for students to understand the context of mathematics is the teacher's effort to encourage students to be interested in and like aspects of mathematics (Rellensman & Schukajlow, 2020).

Preschool-level comprehension of mathematics contributes to the development of a robust cognitive domain in children (Linder & Simpson, 2018). Additionally, elementary school students' grasp of mathematics serves as a foundational platform for their understanding of the subject in subsequent levels

(Pamudi, 2022). Despite this, it is acknowledged that mathematics is commonly perceived as a challenging subject for students (Harun & Manaf, 2021; Weng & Yang, 2017), including among Indonesian students (Riyanto, 2019).

Basically, mathematics is an abstract science that contains many mathematical symbols, and for elementary school children who are in the phase of concrete operational thinking will be very difficult to understand (Widodo & Kartikasari, 2017).

In mathematics learning, there are several standards that students must have. According to National Council of Teacher Mathematics (2003), mathematical standards are divided into 2, namely material standards and process standards. Material standards are concerned with the content that students must learn, and process standards are concerned with specific skills that students must possess. The material taught in mathematics is arithmetic, geometry, measurement and statistics. One of the materials in learning arithmetic is numbers. Numbers are a very important material in mathematics in elementary school.

Rational numbers are part of several types of numbers learned in elementary school. Rational numbers were first studied in the form of fractional concepts, and this is important to learn in elementary school. In various countries, fractional material has begun to be taught from grade 1 of elementary school (Alajmi, 2012). This means that fractional matter is considered essential in learning mathematics, Students' level of understanding of fractions has a close relationship with their overall success in mathematics (Siegler et al., 2012). So, it is necessary to instill the right fraction concept when students are in elementary school. According to Doğan and Sir (2022), one of the most basic elementary school mathematics subjects is fractions, the concept of fractions plays a key role in the educational background of students. In general, the main idea of fractions can be divided into five parts, part-whole, measure, operation, quotients, and ratios and rate (Eliustaoglu, 2016; Clarke, 2006), This idea is a very important part to be understood by students in the context of mathematics.

Fraction concepts are frequently identified as challenging in elementary school mathematics, as supported by various studies, including those conducted by Heriyani et al. (2022) and Deringol (2019). These challenges persist in the elementary school context, as highlighted in the research of Hariyani et al. (2022), which delves into obstacles encountered by students in learning fractional material.

Based on the results of the report, that in learning mathematics, fractions are the material with the lowest rank (Braithwaite et al., 2017). This certainly reinforces previous studies about students' difficulties in understanding fractional material. This is because students experience many conceptual errors in the material (Hastuti et al., 2020). According to Torbeyns et al. (2015) that conceptual understanding of fractions is one of the biggest challenges in mathematics classrooms that students have faced for several years. The results of research conducted by Hoch (2018) that there are 33 international studies that examine fractions and found 58 empirically typical errors, these errors are often systematic in nature such as implementing the wrong system and showing a lack of conceptual understanding. The difficulty students face in solving problems related to fractions stems from their tendency to memorize formulas and algorithms without grasping the actual meaning of fractions, as indicated by research conducted by Gabriel et al. (2013), and Şiap and Duru (2004). When students have difficulty answering questions especially in fractional material, this indicates that there are some learning obstacles, the causes are the interaction system, the learning process, the nature of the teaching from the teacher, the nature of the subject matter, genetic factors and personal development (Sukirno & Ramdhani, 2016). Obstacles experienced by students can also be caused by gaps between concepts formed by students, teachers, and the presentation of teaching materials, this is also called the zone of concept image different (ZCID). Learning obstacle is divided into 3 of them are, 1) ontogenic obstacle, is a learning obstacle caused by the limitations of the student in self-development or related to the mental readiness of student learning, 2) epistemological obstacle, is a learning obstacle caused by the limited knowledge that students have in certain contexts, and 3) didactical obstacle, is a learning obstacle caused by the method or approach used by the teacher, or it could be from the presentation of textbooks (Suryadi, 2015).

In their professional duties, teachers need to identify learning obstacles and then think about solving problems from these obstacles, when this is not found a solution, it will cause learning difficulties. According to Jamal (2014) student learning difficulties will have an impact on learning achievement, because to obtain good achievement, it can be obtained from the treatment of learning inside and outside of school and on the provisions and efforts in learning. So, what the teacher has to do in overcoming problems related to student learning obstacles is to design a learning plan that is made as a didactic design (Fauzi, 2020). Didactic Design Research (DDR) is to develop didactic design and can overcome student learning obstacles.

DDR is a type of design research method whose goal is to develop learning innovations in the form of didactic designs and teaching materials in mathematics education. According to Gravemeijer and Cobb (2006), philosophy in design research is how researchers try to create various educational innovations.

According to Suryadi (2018), DDR is based on two paradigms, namely interpretive and critical. This paradigm is the main basis for creating an effective design, and can be applied in learning activities. The reality studied in DDR is related to the characteristics of the concept image that is formed in a person as a result of the learning process with a certain didactic design, the process of forming the concept image is not only experienced by students, but also experienced by teachers who have the task of teaching concept knowledge to students. the concept image possessed by the teacher will have an impact on students' understanding and meaning of the concept of knowledge they have. The image of the concept of students and teachers may also not be in accordance with the actual scientific conception. So, this is a DDR reality study to be able to analyze and see the suitability of the Zone of Concept Image Different (ZCID) between students, teachers and scientific conception. Then, another reality that becomes the study of DDR is the impact of didactic design which results in learning obstacles for students.

The two realities described above can bring up various possible responses related to student learning obstacles, which then need to be prepared for pedagogical didactic anticipation in a didactic design, the didactic design developed can form a conceptual image that is in accordance with the scientific conception and can overcome the learning obstacle problems experienced by students. It is on this basis that the critical-interpretation paradigm can be used to encourage the creative thinking of researchers so that they are able to generate positive ideas for the development of better didactic designs.

The didactic design developed in this study is on the concept of fractions, namely fractions as part to whole, compare fractions, equivalent fractions, and add and subtract fractions with the same denominator. Learning in didactic design is made in an Engklek games, this game is often played by children in everyday life. Cultural integration in the context of learning mathematics through Engklek games is very important to be reintroduced in the 21st century so that this is not lost by the times and technological developments. According to Ascher (1984), studies that explain mathematical ideas that contain the context of traditional society are referred to as ethnomathematics. According to Powell and Frankenstein (1997), ethnomathematics invites us to see how mathematical knowledge has been constructed throughout history in different cultural settings. The application of a culture-based learning model is seen as very important to be able to instill positive character formation, and it reflects the nation's cultural values as well as improving the cognitive aspects of students (Arisetyawan et al., 2014).

There have been many studies explaining the integration of culture in learning, especially the Engklek game in mathematics learning, one of which is Supriadi and Arisetyawan (2020) who conducted research entitled the didactic design of Sundanese ethnomathematics learning with the endog-endogan game and the Engklek game in elementary schools, but the learning applied to geometrical concepts. The didactic design in this study was applied to the concept of fractions in elementary schools. This study aims to develop a didactic design on the concept of fractions through cultural integration with Engklek games in elementary schools. This research is something very important to study because it discusses the mathematical and cultural context simultaneously. Engklek games became a culture that was often played by Indonesians, and unconsciously it formed the process of mathematization. This research is different from previous research both in the context of design, material or culture raised.

The several research questions that will be discussed in this research are:

1. What is the concept of image and learning obstacle that occurs to students?
2. How is the Hypothetical Learning Trajectory on the concept of fractions using cultural elements?
3. How is the didactic design of the concept of fractions developed by integrating culture through Engklek games?
4. What is the impact of the didactic design developed on students' understanding of the concept of fractions?

This research can facilitate students to understand the concept of fractions according to the learning trajectory and without experiencing the learning obstacles that were found previously. This research also provides a reference for teachers in planning, implementing and evaluating mathematics learning by integrating the cultural context of the concept of fractions in elementary schools.

METHOD

Research Method

This research uses Didcatical Design Research (DDR). In the DDR stage, In the DDR stage, an analysis of learning barriers is carried out on fractional material, so that this becomes the basis for making didactic designs.

Upon a detailed understanding of the learning obstacles, it serves as the foundation for formulating hypothetical learning trajectories and didactic designs for teaching fractional concepts in elementary schools. The design that has been made is then implemented to see the impact of didactic design on the learning process, the final stage is that the researcher can reflect and revise the didactic design of the concept of fractions in elementary schools.

In developing the didactical design, the researcher uses the DDR stage, namely the process of developing a didactical design consisting of a series of didactical situations, analyzing student responses and the developed didactical situations and decisions taken during the learning process (Suryadi, 2015). DDR consists of three important stages, namely 1) analysis of the didactic situation before the implementation of learning (perspective analysis) in the form of hypothetical didactic design and pedagogical didactic anticipation; 2) didactical-pedagogical analysis of the situation or metapedadidactic analysis; and 3) retrospective analysis linking the results of the hypothetical didactical situation analysis with the results of the metapedia-didactical situation (Suratno, 2016).

Participant

This research was conducted in an elementary school in Serang, Banten Province. The details of the subjects in this study are as follows.

Table 1. Subject of study.

Initial Learning Obstacles	Received a Didactic Design Implementation
20 students	50 students

Data Collection

Data collection was carried out as follows, 1) tests, written tests are given to students in grade 5 who have received previous fractional concept material, the aim is to see learning obstacles, this test is also the basis for seeing the suitability of the concept image formed in students, the tests that have been carried out in grade 5 are the basis for the preparation of hypothetical learning trajectory, and didactic design on fractional material. Tests were also given to grade 4 students to see the impact of the didactic design of the fraction concept before and after it was implemented, 2) interviews, interviews were given to students to see the concept image and mindset or reasons of students in answering the questions that had been given, and interviews were also given to the teacher to see the concept image of the concept of fractions and the teacher's way of teaching the material, this is done to see the cause of didactical obstacles, and 3) observation, observations were made to see the suitability of the hypothetical didactic design developed during implementation. The observed aspects are related to theory of didactical

situation, didactic contract, pedagogical philosophical theory of mathematics, metapedadidactic, and learning trajectory. These observations form the basis for revising the final didactic design that can be applied in the learning process.

Data Analysis

The instrument that has been made is then tested for validity and reliability, it is used in conducting research and data collection. After the data is collected, the following data analysis is carried out: 1) test, when uncovering learning obstacles in grade 5, the researcher recorded all student responses that appeared, identified and grouped them based on the obstacles. Furthermore, the researcher also conducted a quantitative test stage to see how the impact of the didactic design had on students' understanding of the concept of fractions in grade 4, the analysis used the mean difference test between pretest and posttest, 2) interviews, the researcher conducted interview transcripts, provided coding of the meaning of important sentences, and concluded the results of the interviews on the concept image of students, teachers, and students' mindsets or reasons in answering learning obstacle questions, and 3) observation, researchers take videos and photos of learning activities, then record important things that arise, provide comments and assess the results of observations that have been made.

Research Flow

The didactic design model developed in this study refers to the explanations provided by Mulyana et al (2014), in detail can be seen in the image below.

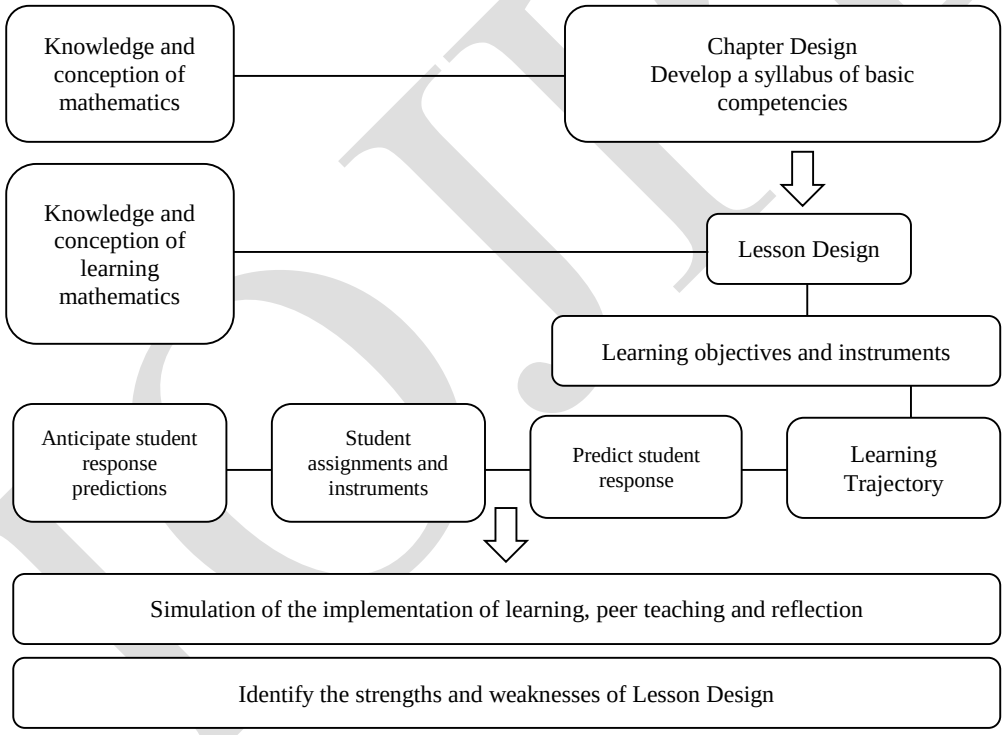

Figure 1. Didactic design development model.

RESULTS

The development of the didactic design of the concept of fractions begins by analyzing in detail the knowledge and mathematical conceptions that occur for both students and teachers, and the analysis of learning obstacles becomes an initial description to reveal these two things, the learning obstacle analysis forms the basis for developing a hypothetical learning trajectory and a hypothetical didactic design, after which it is implemented to see the real picture and the impact of the didactic design on the concept of fractions in elementary schools, this implementation will provide an evaluation and improvement of the didactic design to make it better.

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Learning Obstacles

The learning obstacle test was given to students in grade 5 in a total of 20 students. The types of questions given relate to declaring fractions, comparing fractions, equivalent fractions, addition and subtraction of fractions with the same denominator. Comprehensively the description of students in answering questions is explained in the image below.

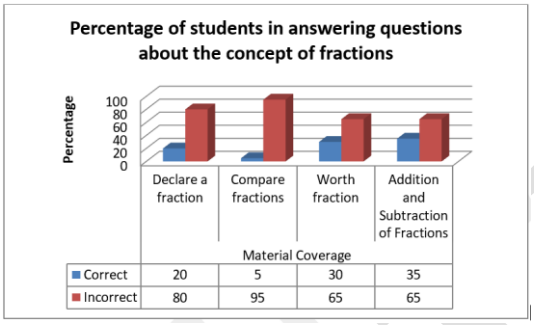

Figure 2. Percentage of students answering questions in the preliminary study.

Based on Figure 2 above, students who have received fractional concept material are still experiencing learning obstacles or their understanding of the material they have mastered is still incomplete, this is evident from the low percentage of students answering questions correctly. Regardless of the low students' ability to answer the questions correctly, it is necessary to analyze in detail the types of learning obstacles experienced by students, so that this provides an overview of the didactic design that will be developed in the material for the concept of fractions in elementary schools.

Ontogenic Obstacle

The ontogenic obstacle found in the concept of fractions is when students have to state the fractions of an image. The obstacle is the inability of students to understand the purpose of the images presented.

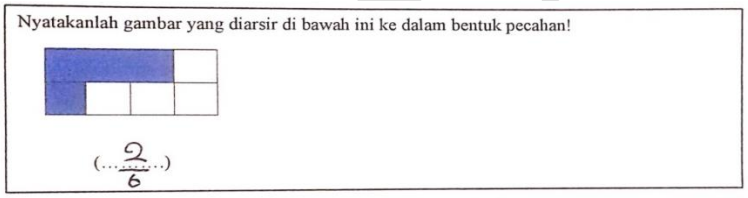

Figure 3. Ontogenic obstacle.

Based on Figure 3 above it shows that students only understand that fractions are part of the whole, without thinking that the parts must be the same, this is also confirmed based on the results of interviews with students which show students only calculate the shaded part (numerator) which amounts to 2, and The total part (the denominator) is 6, so they write down the fraction above is $\frac{2}{6}$, this obstacle is indeed often found from some students, as also explained by Malikha and Amir (2018) that the meaning of fractions which means part of the whole is interpreted differently by students, sometimes students do not pay attention to whether the whole part is fair/equal or not. Supposedly in answering this question, students must involve mental acts in the form of interpretation by making guide lines on parts of the image that are of different sizes, so that later parts of the image with the same size are obtained, only then can they be expressed as fractions whose meaning is part of the same whole.

Epistemological Obstacle

Epistemological obstacles are obstacle to student learning in understanding the concept of knowledge, the obstacles found are very diverse. The obstacle is that when stating fractions from an image, students are not able to understand the concept of fractions as part of the same whole (part to whole).

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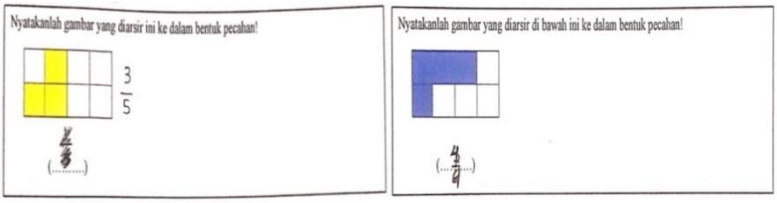

Figure 4. Epistemological obstacle 1.

Based on the results of the interviews, students tend to understand that fractions are the parts that are observed compared to the parts that are not observed. This error is also often found when students state a fraction. According to Şiap & Duru (2004) students assume that the numerator and denominator in fractions are two separate integers, so for that reason they compare the two things. In addition, some students also assume that a fraction is the whole which is expressed as the numerator, and the observed part is the denominator.

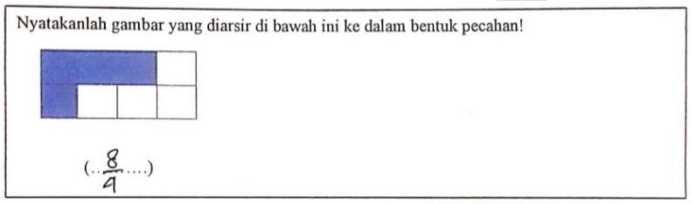

Figure 5. Students consider the whole part (the numerator), and the part that is observed (the denominator).

Based on Figure 5 above, it shows that students are aware that the whole part of the picture is 8, but in stating the fractions, students are mistaken because they think that part 8 is the numerator, and part 4 is the denominator, so they state the fraction is $\frac{8}{4}$

The second epistemological obstacle is related to the inability of students to understand fractions as a measure. This is shown when students are unable to compare fractions with different denominators.

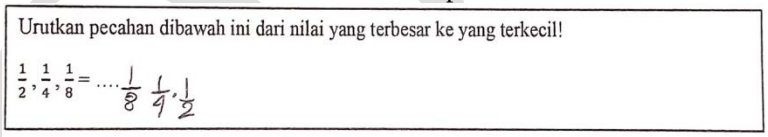

Figure 6. Epistemological obstacle 2.

Based on Figure 6 above, students were asked to sort the values of the fractions from the largest to the smallest, this is to see how students' ability to understand fractions as a measure, but the fact is that out of 20 students, only 1 student answered correctly, and 19 students answered incorrectly as shown in the picture above. Based on the results of interviews that students assume $\frac{1}{8} > \frac{1}{4} > \frac{1}{2}$, whereas to compare fractions with different denominators, students must first equate the parts of the denominator, so that $\frac{1}{8}$, $\frac{1}{4} = \frac{2}{8}$, and $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$ and finally they can conclude that $\frac{1}{2} > \frac{1}{4} > \frac{1}{8}$. According to Obersteiner (2013) that a common mistake is to think of fractions as two separate natural numbers, not as a sum. This becomes a problem when comparing various fractions which assumes that the decision is based on a comparison of the components separately rather than viewed from a holistic comparison of the value of the fractions.

The third epistemological obstacle is related to the inability of students to simplify fractions.

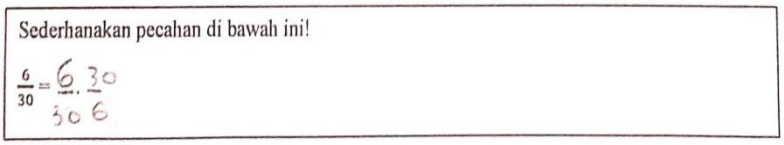

Figure 7. Epistemological obstacle 3.

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Based on the results of the interviews, students tended to be unable to simplify fractions. Another thing to note was prerequisite material that they had not mastered such as multiplication and division of numbers, this caused students difficulties in simplifying fractions. These difficulties are often found, one of them is also described by Hughes (2019) that significantly students are unable to simplify fractions, so that should be one of the targets that must be achieved in learning. Simplifying fractions is closely related to equivalent fractions, and a solid understanding of equivalent fractions is considered the basis for a more complex understanding of the operations of various fractions (Jigyel & Afamasaga-Fuata', 2007).

The fourth epistemological obstacle is related to the inability of students to operate fractions, especially addition and subtraction with the same denominator.

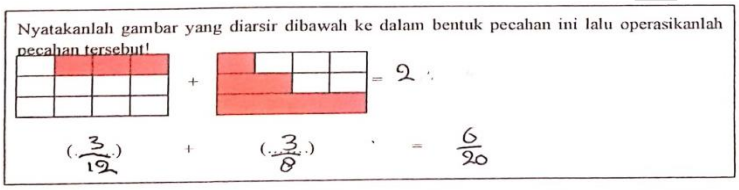

Figure 8. Epistemological obstacle 4.

The first error is seen when the student is unable to express a fraction from an image, thus impacting the addition operation, the second error is when the student is able to state a fraction but is unable to operate it.

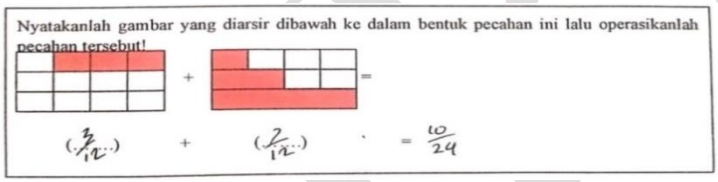

Figure 9. Student mistakes in operating fractions.

Based on the results of the interviews, students completed the addition operation by adding the numerator with the numerator and the denominator with the denominator. This difficulty often occurs because students cannot use modeling correctly in operating fractions (Aksoy & Yazlik, 2017), students only understand that in operating fractions, both (the numerator and denominator) are added up, even though this is a wrong concept.

Didactical Obstacle

The didactical obstacle seen in this study is the teacher's use of methods and strategies in teaching the concept of fractions. Based on the results of interviews with teachers that there are several notes that cause students to experience learning obstacles, one of which is the way the teacher teaches is seen as a conventional way, meaning that the involvement of students in building their knowledge independently is not seen in the learning process, the teacher only presents examples of questions and questions to students based on the handbook. Besides that, in teaching fractions no concrete objects are used, even though according to Piaget that the level of development of elementary school students' thinking is still at concrete operational level. Bruner also explained that learning at the elementary school level must be built from the enactive, iconic, to symbolic stages, so that learning becomes meaningful. Another reason is that the teacher also does not understand the sequence of fractional material based on the actual scientific conception, even though this sequence is the key to students' success in understanding fractional material correctly, this is what causes students' learning obstacles to the concept of fractions.

Hypothetical Learning Trajectory

Based on the analysis of the theory developed by experts about fractions, there are several things that teachers need to pay attention to in relation to learning fractions, this is explained by Nicolaou and Pitta-Pantazzi (2016) in the image below.

The theoretical model formulated for understanding fractions consists of seven abilities including.

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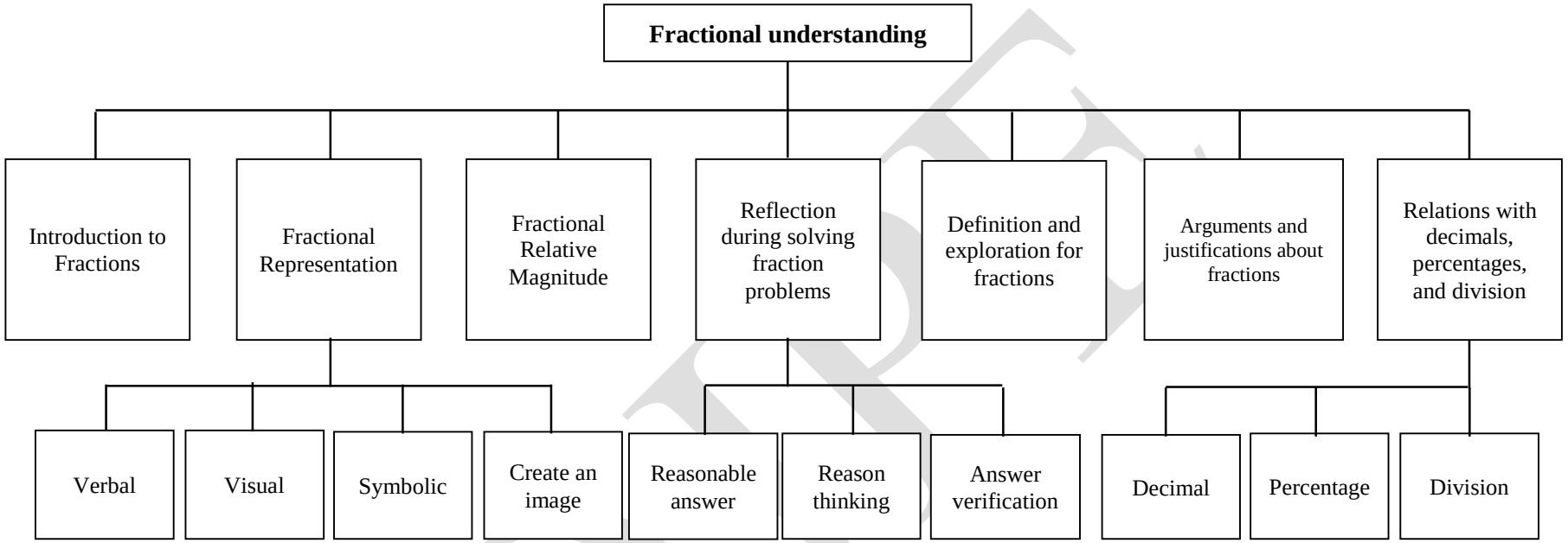

Figure 10. The seven abilities of understanding fractions (Nicalaou & Pitta-Pantazzi, 2016).

The flow of material above becomes the basis for teachers in teaching fraction material in elementary schools. In addition, according to Nicalaou and Pitta-Pantazzi (2016) the ability to understand mathematical concepts is also very important in understanding fractions, so understanding mathematical concepts in fraction material is as follows: 1) reflection on solving fraction problems, 2) arguments and justifications about fractions, 3) definitions and mathematical explanations for fractions, 4) linking ideas and mathematical concepts, and 5) representation of fractions.

The National Research Council (2001) to develop mathematical abilities in understanding fractional material, mathematics textbooks and teaching materials must assist students in developing an understanding of the concept of fractions, while what must be contained in it is as follows, 1) understanding parts, 2) equivalent fractions by using models and number line, 3) operating fractions, 4) understanding the relative sizes of fractions, 5) comparing fractions and solving problems, and 6) relating fractions to students' daily lives.

Prior to discussing more complex material, namely various fractional operations (addition, subtraction, multiplication, and division), students must first master the prerequisite material as a basis for learning the fractional operations material, The prerequisite material is related to students' understanding of the concept of fractions, namely understanding fractions as part of the same whole, understanding the size of fractions through comparisons of two or more fractions, equivalent fractions, addition and subtraction operations for fractions with the same denominator. Learning the concept of fractions is done by integrating culture in learning mathematics through Engklek games.

In Banten Province, Indonesia, children often play this Engklek game, especially in the early 2000s and it is not uncommon for this game to be played in the present era, the types of plots in the Engklek game that are often used are as follows.

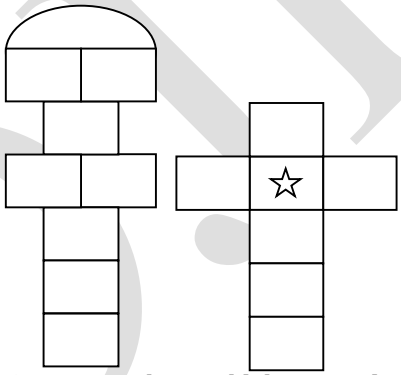

Figure 11. The Engklek game plot.

If you look at the plot above, it is very difficult to introduce the concept of fractions because the pictures are too complex. The fraction plots used in learning mathematics, especially in introducing the concept of fractions, are as follows.

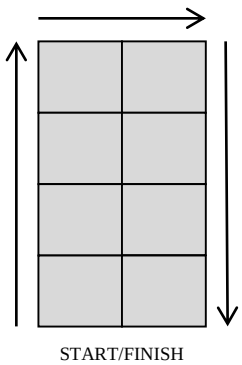

Figure 12. Modification of plots in the Engklek game.

The plot above is much simpler to introduce the concept of fractions, the rules of the game used are the same, including: 1) the children are divided into several groups, 2) each group has 4-5 children to play, 3) each child holds an object (usually a piece of tile or some kind of stone) to be thrown into the plot sequentially, and the child will start jumping using one foot; 4) the thrown object must not stick or go off the line; 4) tiles where objects cannot be stepped on by any player means that the child must jump to the next tile sequentially; 5) when jumping, children also may not step on or go off the line; 6) before reaching the finish, they must take their belongings, 7) a player who has completed one full turn, he or she will throw an object into the square to serve as their home, throwing it facing opposite, 8) the house that belongs to them is marked with an asterisk, the plot may be stepped on using two feet by the owner and other players cannot step on it so they have to jump to the next tile, and 9) the player who has the most number of plots will be the winner.

The lesson begins by introducing the concept of fractions as part of the same whole. According to Van de Wallet et al. (2013) the part to whole interpretation of the concept of fractions is basically about dividing the whole. For example, when the whole is divided into five equal parts, each part is a fifth ($\frac{1}{5}$). Fractions represent the quotient of two quantities $\frac{Part}{Divisor}$, the part (numerator) represents how many parts are taken / paid attention to, and the divisor (denominator) represents the number of parts that are divided (Iulia & Gugoiu, 2006). The introduction of this concept is carried out when students describe parts of the Engklek game plot with size 10 cm × 10 cm this is to show that the total part of the fraction is 8, students then cut out the parts that have been drawn according to size, this is important to show that the fractional parts must be the same size, only then do they count the number of plot parts they have when playing, this is to direct students to introduction to the concept of fractions as part to whole.

After that students calculate and compare the plots they have and also their friends, this is to show the comparison of fractions with the same denominator. What must be considered when comparing fractions is that if the denominators are the same, then the numerator that has the smallest number is clearly smaller than the numerator that has the larger numerator or ($\frac{small}{a} < \frac{large}{a}$), if the denominators are different, you must first equate the denominators, only then to compare them using the rules $\frac{small}{a} < \frac{large}{a}$ (Iulia & Gugoiu, 2006). After that students are given a plot image with 4 parts and the overall size is the same as the plot previously drawn, this is to show that when students get $\frac{4}{8}$ of the plot will be equal to $\frac{2}{4}$ or $\frac{1}{2}$ of the plot, or when students get $\frac{2}{8}$ of the plot will be equal to $\frac{1}{4}$ of the plot, students will also realize that fractions $\frac{1}{2} = \frac{2}{4} = \frac{4}{8} > \frac{1}{4} = \frac{2}{8} > \frac{1}{8}$.

The next step is for students to look back at the pictures that have been made to teach the concept of adding and subtracting fractions with the same denominator. According to National Research Council (2001) when fractions have the same denominator, the addition is the sum of the numerator and numerator, and the denominators are the same number ($\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}$) and this is also true in the context of subtracting fractions ($\frac{a}{b} - \frac{c}{b} = \frac{a-c}{b}$). The hypothetical learning trajectory that has been developed is described in the image below.

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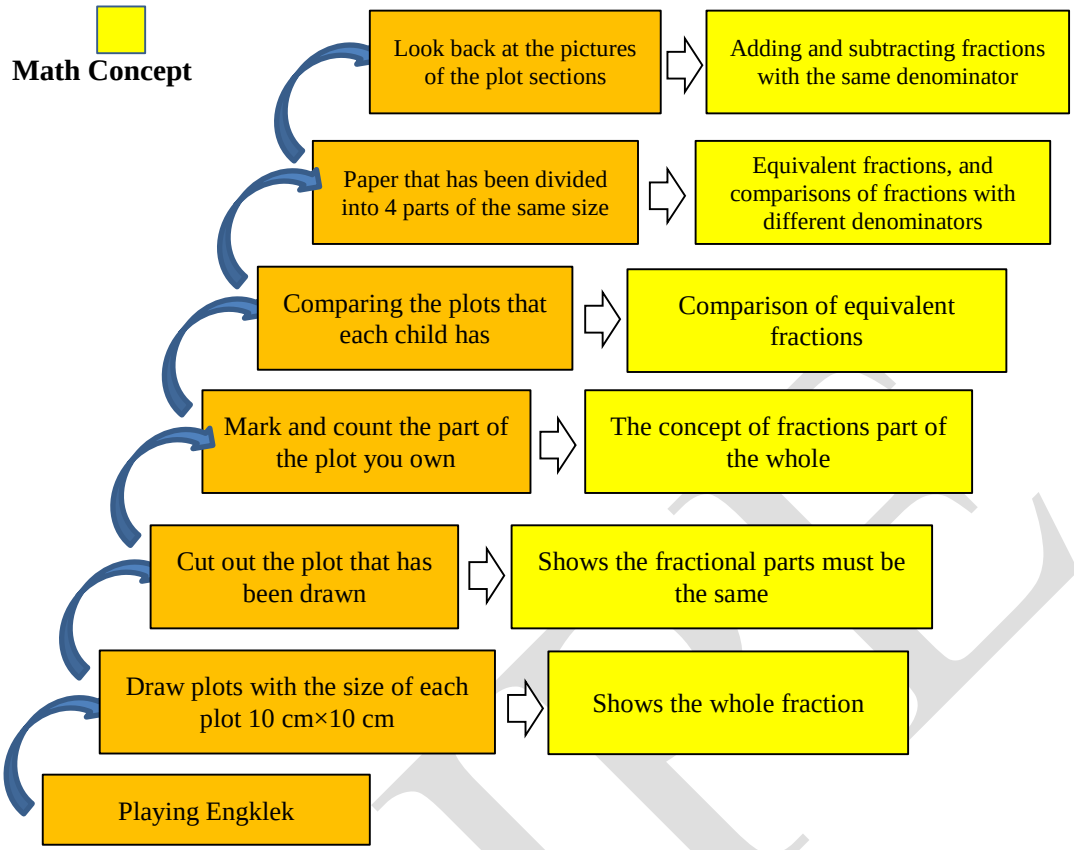

Figure 13. Hypothetical learning trajectory of the concept of fractions.

Implementation of Didactical Design

Before implementing the design, the researcher conducted a pretest to see the students' initial abilities before getting the didactic design, and most of the students got poor results, this was because students' initial understanding of the concept of fractions had not yet been formed. The results can be seen in the image below.

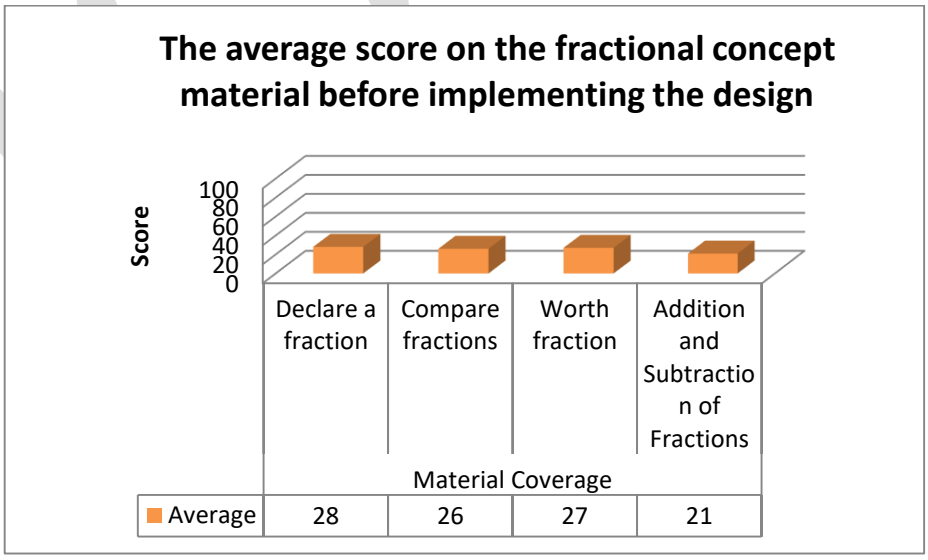

Figure 14. The average score on the fractional concept material before implementing the design.

The didactic design of the concept of fractions that has been developed is implemented in grade 4 of the elementary school, the analysis of the activities is based on the didactic situation that has been planned

in the didactic design. Brousseau (2002) dividing the didactic situation into 4 of which are 1) the action stage where students are given the context of the problem for them to solve, 2) the formulation stage where students can find various ways or formulations in solving problems, 3) the validation stage, with the help of the teacher (scaffolding), students can find the correct concept; and 4) the institutionalization stage, namely the process that allows students to change their previous knowledge into new knowledge through other reinforcements provided by the teacher. The results of the implementation analysis are as follows.

The action stage presents a contextual situation that allows students to find the right formulation in finding the concept they are looking for. The contextual activity that is carried out is by playing Engklek games.

Figure 15. Students play Engklek.

The actions carried out above are included in physical action, this action encourages students at the way of thinking stage (WoT) and ways of understanding (WoU) as described by Harel (2008) related to the philosophical-pedagogical theory of mathematics, with this basis they can find the right formulation and the correct concept in understanding the concept of fractions in accordance with the scientific conception. This activity also involves social interaction with the environment, and the interaction process goes well, this game also involves a didactical contract. According to Brousseau (2002) this didactic contract regulates the social responsibility that underlies the devolution process, namely the transfer of problem solving from the teacher to students, in this condition the teacher acts as a supervisor who sees how the didactical contract goes as it should, if the didactic contract does not go well then the teacher can take over to correct and justify it. The various responses formulated at the action stage in the didactic design can be well anticipated, this is because students already understand the rules about playing Engklek, and this facilitates the learning process.

After playing Engklek, students in groups are given cardboard to be directed to the process of drawing part of the plot, the teacher asks students to draw part of the plot from the Engklek game, and each plot size 10 cm × 10 cm, the response that arose when drawing the plot was to divide it into 10 plots, this was because the students made a mistake in making the plot lines.

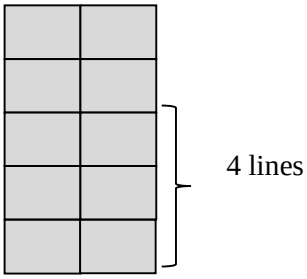

Figure 16. Students' mistakes in making Engklek plots.

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There should be 8 plots made, so this requires pedagogical didactic anticipation to correct the concept. From here students are directed to cut out the parts that have been drawn and then mark the parts they get when playing Engklek. Various groups wrote down different parts, by writing down the parts they had compared to the whole part of the Engklek plot, this was where they found an understanding of the concept of fractions being part to whole.

Figure 17. Examples of student drawings and plot sections.

Students begin to understand that the concept they are learning is the concept of fractions, from here students are encouraged to state a fraction. From the picture above students also begin to compare fractions with the same denominator from the largest to the smallest value. Overall students can compare these fractions correctly because they only see and sort according to the numerator value from the largest to the smallest ($\frac{large}{a} > \frac{small}{a}$). After that, the teacher gives the context of another problem by showing a picture of a fraction whose overall parts are the same as the previous picture but the parts are fewer, namely 4 parts.

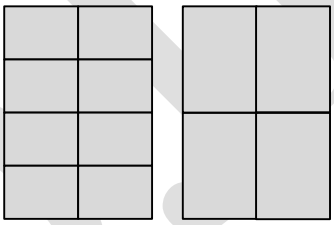

Figure 18. Presenting the context of another problem.

The context of the problem above is given to stimulate students towards equivalent fractions, students realize that the picture given is bigger than the part that was drawn before, by making guide lines so that the parts are the same, students realize that $\frac{1}{4}$ parts if the whole part is changed to 8 parts the fraction will be equivalent to $\frac{2}{8}$, so that the final stage is that students understand that simplifying fractions is done by dividing the numerator and denominator by the same number, until the fraction cannot be divided again. From the picture above, students also understand that the fraction $\frac{1}{4}$ is bigger than $\frac{1}{8}$, this is because $\frac{1}{4}$ has the same value as $\frac{2}{8}$, meaning that in comparing fractions with different denominators what must be done is to first equate the denominator and then compare the fractions with $\frac{large}{a} > \frac{small}{a}$. The process of the activity above also involves mental acts that encourage students to think (WoT) until they find and understand the real concept (WoU).

The last stage, students are asked to look back at their work related to the plots that have been drawn before and ask students to add up their friends' plots with theirs, one example in Figure 17 above.

"If Puput's plots are added up with Rishi, what is the total!"

By looking at the part of the picture that has been made, students already realize that the whole part is adding up the numerator and numerator parts, and the denominator numbers are the same ($\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}$) or in subtraction ($\frac{a}{b} - \frac{c}{b} = \frac{a-c}{b}$).

In the validation stage, students are directed to find the actual concept. The activities carried out were when they discussed each activity.

Figure 19. Students discussing and working in groups.

Discussion activities in these groups will lead to learning interactions in class, with discussions and collaborating they begin to discover the concepts being studied, including understanding fractions of parts of the same whole, comparing fractions, equivalent fractions, and addition and subtraction operations for fractions with the same denominator. At the discussion stage, students sometimes have difficulty in solving problems, the teacher's job is to provide help so that students understand the problem, and when students begin to be able to solve problems, slowly the teacher releases the help and gives full authority to students to solve it. The help that teachers provide in Vygotsky's theory is called scaffolding.

After students get learning the concept of fractions, the teacher provides the context of other problems to strengthen the new concepts they have understood before, while the context of the problem is by giving questions related to the learning activities that have been carried out, at this stage the teacher notes several important points as material for learning reflection and improvement of the didactic design of the concept of fractions. At the end of the lesson, the teacher also gave a posttest to see students' understanding of the concept of fractions in elementary schools, while the results are as follows.

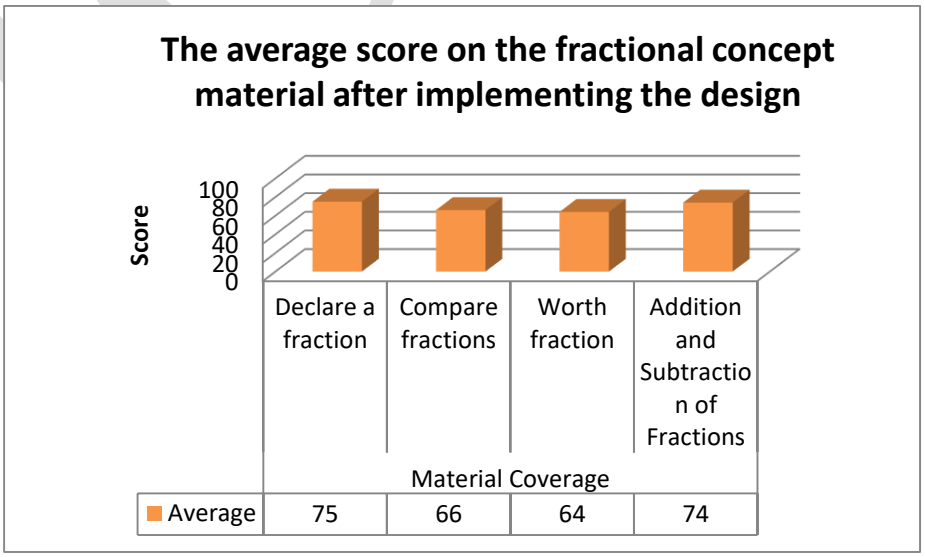

Figure 20. The average score on the fractional concept material after implementing the design.

Based on Figure 20, students have begun to understand that fractions are part to whole and the operations of adding and subtracting fractions with the same denominator, but in the section comparing fractions with different denominators and equivalent fractions or simplifying fractions, some errors are still found, and this is also become an important note in the next design improvement.

In addition, based on observations, the didactic design that has been implemented is in accordance with the metapedadidactic theory, in which there are 1) logical integration, namely the presentation of didactic situations that are gradual and in accordance with learning objectives, 2) complete unity, namely the material presented is didactic-pedagogical, the relationship between 3 the elements (student-teacher-material) are well established, and the diversity of responses can be responded to properly, and 3) flexibility, namely the management of learning is flexible and the learning activities are in accordance with the learning flow experienced by students. In addition, if you look at the learning trajectory, the context of the material has been presented systematically and gradually, but the prerequisite material has not been mastered in its entirety, this is the main obstacle in applying the didactic design of the fractional concept.

Retrospective Analysis

At the institutionalization stage, there are several important notes that serve as material for reflection and improvement of didactic design on the concept of fractions, namely in stating fractions with the same size of parts all students understand and can state them correctly, but when given the context of fractional parts with different sizes, the error is still found. In addition, the errors that are often found are when students are asked to simplify fractions and compare fractions with different denominators. This can also be seen from the results of the learning evaluation in Figure 20. The reason is that there are some students whose prerequisite material (multiplication and division of numbers) they have not mastered, or tend not to memorize, even though multiplication and division of numbers are very closely related to comparisons of fractions with different denominators and equivalent fractions. Another important prerequisite material is the greatest common factor and the least common multiple, because this applies to simplifying fractions and equating the denominator of fractions when doing comparisons of fractions with different denominators, so that in the didactic design the revision needs to be linked and discussed the material for the largest common factor and the least common multiple. Another thing to note is that the didactic design that has been implemented needs to be strengthened by revisiting the material that has been taught, so that the hope is that students' understanding will be intact and thorough.

The results of the implementation of the didactical design showed an increase in students' scores on the concept of fractions. This can also be seen from the table below.

Table 2. Statistics on the impact of didactic design implementation.

	Mean	Min	Max	Sig. Normality	Std.Dev.	N-Gain	Sig
Pretest	25.9	5	65	.005	9.87	.59	.000*
Posttest	69.9	33	100	.324	12.3		

*p<.05

From the Table 1 above, the average pretest result is 25.9 with a minimum value of 5 and a maximum of 65, and the posttest average result is 69.9, with a minimum value of 33 and a maximum of 100. The normality test results show that sig. the pretest has a score of .005 meaning that the pretest scores are not normally distributed, and sig. posttest has a score of .324, meaning that the posttest scores are normally distributed. Because one of the data was not normally distributed, the mean difference test was carried out by conducting a non-parametric test using the Mann-Whitney, the results showed that sig. of .000 < .05. This means that there is a significant difference in the mean between students' scores on fractional material before and after implementing the design. This result is also evidenced by the N-Gain score of .59 which indicates an increase in the score in the medium category.

DISCUSSION, CONCLUSION, and SUGGESTIONS

The results showed that there was an increase in students' scores on fractional material caused by didactic designs made according to students' real conditions. Basically, the education and learning system cannot be separated and are an integral part of real life (Annisa, 2019), then, it is very important that the link between real life and learning has a positive influence to attract students' attention in the learning process (Akınoğlu & Tandoğan, 2007). The initial perspective that views mathematics as a difficult subject because it is abstract and formal turns into what they see in everyday life, this indicates that there are mathematical principles as a human activity (Freudenthal, 1971), this means that mathematics cannot be separated from human life (Umbara et al., 2021a). Integration with real life allows students to learn from events encountered in everyday life, this will have an effect on increased educational functioning and individual-centered learning environment (Kaya & Keşan, 2014). The integration of mathematics with real life can improve students' ability to connect mathematics with real life, making it easier for students to understand abstract mathematical concepts (Üredi & Doğanay, 2023). Then, students will feel happy in carrying out learning activities because they relate to their lives. In this context, a pleasant environment will generate motivation and have an impact on student achievement (Gian et al., 2021), besides that, a fun school will have a positive impact, students feel acknowledged, satisfied, safe, and can be themselves (Calp, 2020).

Students feel happy in participating in learning activities, this is because the learning context is integrated with playing. According to Juhász (2021) a game will have a cheerful impact and it will provide a positive element in learning activities. Games provide agreement for children to try new things, explore, and solve problems (Burdette & Whitaker, 2005). In addition, learning through games is a highly recommended activity so as to create a fun classroom environment (Clark, 2019; Sezgin, 2016). Thus, it should be in the context of education, especially in elementary schools, that learning must be integrated with the context of play because it is their nature as children who like games.

The Engklek game is a traditional cultural game that is often played by students in everyday life. This is in accordance with the principles of ethnomathematics, namely integrating learning mathematics into culture. Learning mathematics with a cultural context is not only interesting, but it will be able to involve students in their learning activities, so that students find it easier to understand mathematical concepts and are more likely to bring their experience to the learning process (Snounu, 2019). According to Sunzuma et al. (2021) ethno-matematics is very important in teaching and learning mathematics because it is believed to be able to improve students' understanding and learning achievement in mathematics. Ethnomathematics allows students to communicate the mathematical ideas they find constructed through social phenomena (Umbara et al., 2021b). In addition, students can use mathematical ideas, concepts, and practices in an effort to solve problems in everyday life (Payadnya et al., 2021).

If we see that the Engklek game in learning fractions has a series of mathematization processes, in which horizontal and vertical mathematization processes occur. According to Gravemeijer (1994) the mathematization process that occurs through 2 stages, namely horizontal and vertical mathematization. Horizontal mathematization occurs when students explain contextual problems using their informal strategies to solve them. If the informal strategy leads students to solve problems using mathematical language or to find algorithms, then this movement process shows vertical mathematization. The process of mathematizing in the context of playing Engklek and its relation to the concept of fractions is described below.

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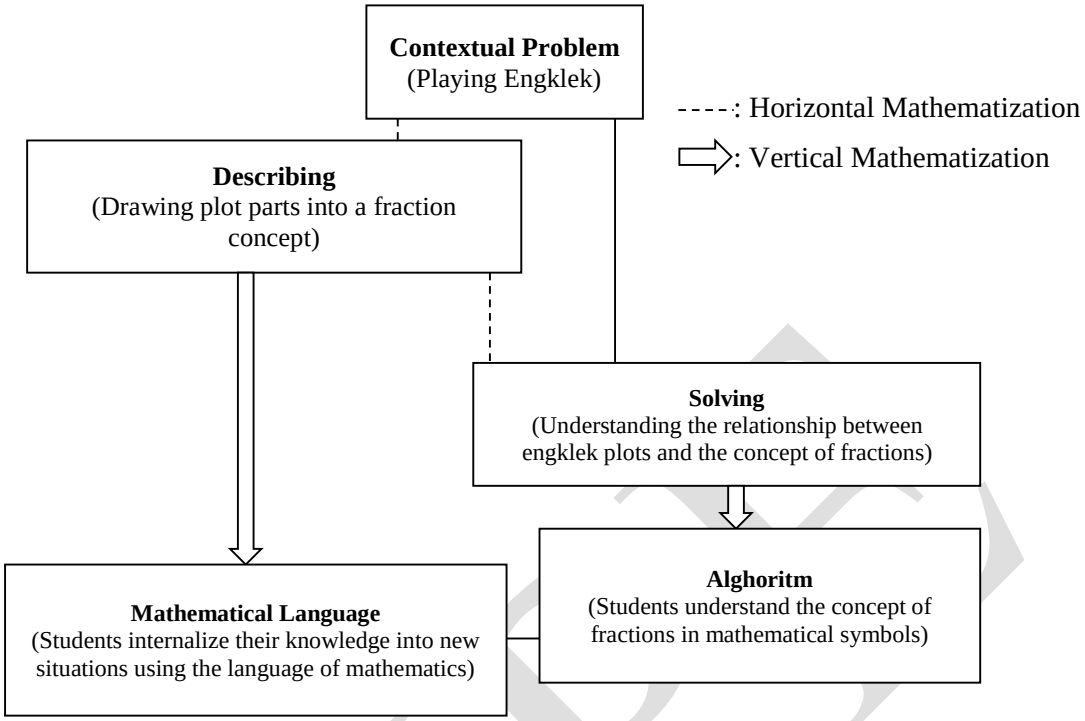

Figure 21. The process of mathematizing in Engklek games and its relation to the concept of fractions.

Based on Figure 21, it can be seen how the transition of the mathematical process is built from the informal stage through the context of play to the formal stage in the language of mathematics. The mathematical process that occurs is in accordance with the stages of thinking development of elementary school children who are at the concrete operational stage (Franzoi, 2011), this makes it easier for students to construct their understanding and experience into new situations to understand the concept of fractions. Students who are classified as having concrete operational development must use proper and direct logic on concrete things, if students are presented on things that are out of a concrete context, students will experience difficulties (Moore, 2012). In the context of learning, especially in elementary schools, there needs to be a learning transition that is built from concrete, semi-concrete to the symbolic/abstract stages.

This principle aligns with Bruner's (1996) assertion that our world can be comprehended and expressed through three stages: enactive (action), iconic (perceptual organization), and symbolic (words and symbols). These stages hold significant relevance, particularly in the context of education and learning, especially in the domain of mathematics education in elementary schools, where cognitive processes are often in the concrete operational stage.

Conclusion

The results of this study indicate that in understanding the concept of fractions, students experience learning obstacles related to ontogenic, epistemological, and didactical obstacles. From this learning obstacle, the researcher created a hypothetical learning trajectory as the basis for making didactic designs on the concept of fractions. The didactic design that was made was related to the cultural context, namely teaching the concept of fractions with Engklek game. After the implementation of the didactic design, there was an increase in the average score of students on the concept of fractions. Before the implementation of the didactic design the average score was 25.9, and after the implementation of the didactic design increased to 69.9, this is also evidenced by the N-Gain score of .59, this indicates that the increase is in the medium category. From the results of the mean difference test using the Mann-Whitney test, it was found that the sig. equal to .000, which means that there is an increase in the

average score of students before and after the implementation of the didactic design using the Engklek game. This shows that the didactical design made has a significant impact on students' understanding.

Limitations

The limitation of this study lies in the research subjects who only took 50 students on mathematics learning. In addition, the scope of the material is only on the fractional aspect in grade 4 elementary school. In addition, the cultural context raised in this study is related to Sundanese culture in Banten Province so that this is closely related to the real life of children.

Suggestions

In implementing learning, especially on the concept of fractions, the teacher needs to ensure that the prerequisite material for the concept of fractions must be mastered correctly, such as memorizing multiplication and division, and mastering material related to the largest common factor and the smallest common multiple. This research can provide an overview of the importance of integrating the culture and environment of children's lives into learning, especially in elementary school mathematics. This research can be used as a consideration or reference for conducting similar research on the mathematical context of fractional material by integrating culture. The didactic design in this study is an alternative in mathematics education research, especially in developing the didactic design of the concept of fractions by integrating the cultural context (Engklek game) in elementary schools. However, it does not rule out the possibility that the didactic designs that have been made in this study can be refined or redeveloped for the better.

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Ethics and Conflict of Interest

This research has obtained permission from the subject under study and the principal of an elementary school in Banten Province. The study has followed the direction of Research Ethics, and the authors state that they do not have any potential conflict of interest.

REFERENCES

Akınoğlu, O., & Tandoğan, R. Ö. (2007). The effects of problem-based active learning in science education on students' academic achievement, attitude and concept learning. *Eurasia Journal of Mathematics, Science & Technology Education, 3*(1), 71-81.

Alajmi, A. (2012). How do elementary textbooks address fractions? A review of mathematics textbooks in the USA, Japan, and Kuwait. *Educational Studies in Mathematics, 79*(2), 239-261.

Annisa, F. (2019). Planting of discipline character education values in basic school students. *International Journal of Educational Dynamics, 1*(1), 107-114. https://doi.org/10.24036/ijeds.v1i1.21

Arisetyawan, A., Suryadi, D., Herman, T., & Rahmat, C. (2014). Study of ethnomathematics: A lesson from the Baduy culture. *International Journal of Education and Research, 2*(10), 681-688.

Ascher, M. (1994). *Ethnomathematics: A multicultural view of mathematical ideas.* Boca Raton, London, New York. Washington DC: Chapman & Hall/CRC.

Baykul, Y. (2009). *İlköğretim matematik öğretimi* [Elementary mathematics teaching]. Ankara: Pegem A Publishing.

Braithwaite, D. W., Pyke, A. A., & Siegler, R. S. (2017). A computational model of fraction arithmetic. *Psychological Review, 124*(5), 603–625. https://doi.org/10.1037/rev0000072.

Brousseau, G. (2002). *Theory of didactical situation in mathematics.* New York, Boston, Dordrecht, London, Moscow: Kluwer Academic Publishers.

Bruner, J. S. (1966). *Toward a theory of instruction*. Harvard University Press.

Burdette, H. L., & Whitaker, R. C. (2005). Resurrecting free play in young children: looking beyond fitness and fatness to attention, affiliation, and affect. *Archives of Pediatrics and Adolescent Medicine, 159*(1), 46–50. https://doi.org/10.1001/archpedi.159.1.46

Calp, Ş. (2020). Peaceful and happy schools: How to build positive learning environments. *International Electronic Journal of Elementary Education, 12*(4), 311-320. https://doi.org/10.26822/iejee.2020459460

Clark, Z. K. (2019). Exploring children's play iin early years learning environments: What are the factors that shape children's play in the classroom?. *Journal of Early Childhood Research*. https://doi.org/1–13.10.1177/1476718X19849251

Clarke, D. (2006). Fractions as division: The forgotten notion?. *APMC, 11*(3), 4-10.

Deringöl, Y. (2019). Misconceptions of primary school students about the subject of fractions. *International Journal of Evaluation and Research in Education (IJERE), 8*(1), 29-38. https://doi.org/10.11591/ijere.v8.i1.pp29-38.

Doğan, A., & Sir, H. K. Y. (2022). Development of primary school fourth-grade students' fraction calculation strategies through the argumentation method. *Journal of Education and Learning (EduLearn), 16*(2), 262-272. http://dx.doi.org/10.11591/edulearn.v16i2.20511

Eliustaoglu, E. (2016). *Investigation of fraction schemes and models as a means to understand how sixth grade students make sense of fractions*. Kent State University College and Graduate School of Education, Health, and Human Services.

Escalera-Chávez, M. E., Ramos-Hernández, J., & Molchanova, V. S. (2021). Mathematics: an academic discipline that generate anxiety in college students. *European Journal of Contemporary Education, 10*(1), 35-42. http://dx.doi.org/10.13187/ejced.2021.1.35

Fauzi, I. (2020). *Desain didaktis operasi hitung Penjumlahan dan Pengurangan Pecahan di Kelas 5 Sekolah Dasar*. Bandung: Universitas Pendidikan Indonesia.

Franzoi, S. L. (2011). *Psychology a discovery experience.* USA: South-Western.

Freudenthal, H. (1971). Geometry between the devil and the deep sea. *Educational Studies in Mathematics, 3*, 413–435.

Gabriel, F, Coché, F., Szűcs, D., Carette, V., Rey, B. S., & Content, A. (2013). A componential view of children's difficulties in learning fractions. *Developmental Psychology, 715*(4), 1-12. https://doi.org/10.3389/fpsyg.2013.00715

Giản, P. M., Bảo, Đ. Q., Tâm, T. T. T. N., & Tặc, P. V. (2021). Happy schools: perspectives and matters of organization-pedagogy in school's building and development. *International Education Studies, 14*(6), 92-102. https://doi.org/10.5539/ies.v14n6p92

Gravemeijer, K. P. E. (1994). *Developing realistic mathematics education*. The Nederlands, Utrecht: Freudenthal Institute.

Gravemeijer, K., & Cobb, P. (2006). Design research from a learning design perspective. In van den Akker et al. (Eds.), *Educational design research* (pp. 45-85). London: Routlege.

Harel, G. (2008). What is mathematics? A pedagogical answer to a philosophical question. In Gold, B & Simons, R. (Eds.), *Proof and another dilemmas. Mathematics and philosophy* (pp. 265-290). Washington: The Mathematical Association of America, Inc.

Hariyani, M., Herman, T., Suryadi, D., & Prabawanto, S. (2022). Exploration of student learning obstacles in solving fraction problems in elementary school. *International Journal of Educational Methodology, 8*(3), 505-515. https://doi.org/10.12973/ijem.8.3.505

Harun., Kartowagiran, B., & Manaf, A. (2021). Student attitude and mathematics learning success: A meta-analysis. *International Journal of Instruction, 14*(4), 209-222. https://doi.org/10.29333/iji.2021.14413a.

Hastuti, I. D., Surahmat., Sutarto., & Dafik. (2020). The effect of guided inquiry learning in improving metacognitive skill of elementary school students. *International Journal of Instruction, 13*(4), 315-330. https://doi.org/10.29333/iji.2020.13420a

Hughes, E. M. (2019). Point of view video modeling to teach simplifying fractions to middle school students with mathematical learning disabilities. *Learning Disabilities: A Contemporary Journal, 17*(1), 41-57.

Hoch, S., Reinhold, F., Werner, B, Richter-Gebert, J & Reiss, K. (2018). Design and research potential of interactive textbooks: The case of fractions. *ZDM Matehematics Education, 50*(5), 839-848. https://doi.org/10.1007/s11858-018-0971-z.

Iulia & Gugoiu, T. (2006). *The book of fraction.* Mississauga, Ontario, Canada: Albina Way.

Jamal, F. (2014). Analisis kesulitan belajar siswa dalam mata pelajaran matematika pada materi peluang kelas XI IPA SMA Muhammadiyah Meulaboh Johan Pahlawan. *Jurnal MAJU (Jurnal Pendidikan Matematika), 1*(1), 18-36.

Jigyel, K., & Afamasaga-Fuata', K. (2007). Students' conceptions of models of fractions and equivalence. *The Australian Mathematics Teacher, 63*(4), 17-25.

Juhász, A. (2021). Primary school teachers' attitude to board-games and their board-game playing practice. *Acta Didactica Napocensia, 14*(1), 182-187. https://doi.org/10.24193/adn.14.1.15.

Kaya, D., & Keşan, C. (2014). The importance of the algebraic thinking and algebraic reasoning skills for primary school students. *International Journal of New Trends in Arts, Sports & Science Education (IJTASE), 3*(2), 38-48.

Linder, S. M., & Simpson, A. (2018). Towards an understanding of early childhood mathematics education: A systematic review of the literature focusing on practicing and prospective teachers. *Contemporary Issues in Early Childhood, 19*(3), 274-296. https://doi.org/10.1177/1463949117719553

Lingefjärd, T., & Ahmet, G. (2022). Dynamic applets for teaching physics. *Physics Teacher*. https://doi.org/10.1119/10.0009421

Malikha, Z., & Amir, M. F. (2018). Analisis miskonsepsi siswa kelas V-B MIN buduran sidoarjo pada materi pecahan ditinjau dari kemampuan matematika. *Pi: Mathematics Education Journal, 1*(2), 75–81. https://doi.org/10.21067/pmej.v1i2.2329

Moore, J. C. (2012). Transitional to formal operational: Using authentic research experiences to get nonscience students to think more like scientists. *European Journal of Physics Education, Special Issue 2012*, 1-12.

Mulyana, E., Turmudi, & Juandi, D. (2014). Model pengembangan desain didaktis subject specific pedagogy bidang matematika melalui program Pendidikan Profesi Guru. *Jurnal Pengajaran MIPA, 19*(2), 141-149. http://dx.doi.org/10.18269/jpmipa.v19i2.454.

National Council of Teachers of Mathematics. (2003). *The use of technology in learning and teaching of mathematics*. in: http://nctm.org/about/position_statements/position_statement_13.html.

National Research Council. (2001). *Adding it up: Helping children learn mathematics.* J. Kilpatrick, J., Swafford., & B. Findell (Eds.). Mathematics Learning Study Committee: Center for Education.

Nicolaou, A., & Pitta-Pantazi, D. (2016). Hierarchical levels of abilities that constitute fraction understanding at elementary school. *International Journal of Science and Mathematics Education, 14*(4), 757-776.

Pambudi, D. S. (2022). The effect of outdoor learning method on elementary students' motivation and achievement in geometry. *International Journal of Instruction, 15*(1), 747-764. https://doi.org/10.29333/iji.2022.15143a

Obersteiner, A., Van Dooren, W., Van Hoof, J., & Verschaffel, L. (2013). The natural number bias and magnitude representation in fraction comparison by expert mathematicians. *Learning and Instruction, 28, 64–72.* http://dx.doi.org/10.1016/j.learninstruc.2013.05.003.

Payadnya, I. P. A., Suwija, I. K., & Wibawa, K. A. (2021). Analysis of students' abilities in solving realistic mathematics problems using "what-if"-ethnomathematics instruments. *Mathematics Teaching Research Journal, 13*(4), 131-49.

Powell, A.B., & Frankenstein, M. (1997). *Ethnomathematics: Challenging eurocentrism in mathematics education*. New York: State University of New York Press, Albany.

Rellensmann, J., & Schukajlow, S. (2020). Does students' interest in a mathematical problem depend on the problem's connection to reality? An analysis of students' interest and pre-service teachers' judgments of students' interest in problems with and without a connection to reality. *ZDM, 49*(3), 367–378. http://dx.doi.org/10.1007/s11858-016-0819-3.

Riyanto, R. (2019), Designing number-based word synonyms (NBWS) game as a learning technique. *Education Quarterly Reviews, 2*9(1), 243-250. http://dx.doi.org/10.31014/aior.1993.02.01.56.

Schoenfeld, A. H. (1989). Explorations of students' mathematical beliefs and behavior. *Journal for Research in Mathematics Education, 20*(4), 338–355.

Sezgin, S. (2016). Human and the game: Past, present, and future of games. International Congressof Educational Research. Canakkale 18 Mart University.

Şiap, İ., & Duru, A. (2004). The ability to use geometrical models in fractions. *Kastamonu Education Journal, 12*(1), 89–96.

Siegler, R. S., Duncan, G. J., Davis-Kean, P. E., Duckworth, K., Claessens, A., & Enge, M. (2012). Early predictors of high school mathematics achievement. *Psychological science, 23*(7), 691-697. https://doi.org/10.1177/0956797612440101.

Snounu, Y. (2019). Disability and higher education in Palestine. *Journal of Culture and Values in Education, 2*(3), 61-78. https://doi.org/10.46303/jcve.03.02.4

Subrahmanyam, J. (2021). Does gender play a part in high school students' interest and their application of cognitive strategies in learning mathematics?. *Shanlax International Journal of Education, 9*(3), 242-245. https://doi.org/10.34293/education.v9i3.3919.

Sukirno & Ramdhani, D. (2016). Analisis learning obstacles dalam Pembelajaran Pemecahan Masalah Penjumlahan Pecahan pada Siswa Kelas IV SD. *Jurnal Seuneubok Lada, 3*(2), 77-83.

Sunzuma, G., Zezekwa, N., Gwizangwe, I., & Zinyeka, G. (2021). A comparison of the effectiveness of ethnomathematics and traditional lecture approaches in teaching consumer arithmetic: Learners' achievement and teachers' views. *Pedagogical Research, 6*(4), em0103. https://doi.org/10.29333/pr/11215.

Supriadi, S., & Arisetyawan, A. (2020). Didactical design of sundanese ethnomathematics learning with Endogendogan and Engklek games in primary school. *J. Phys.: Conf. Ser. 1567*, 1-6, https://doi.org/10.1088/1742-6596/1567/2/022087.

Suratno, T. (2016). Didaktik dan *didactical design research.* Dalam Suryadi, D., Mulyana, E., Suratno, T., Dewi, D. A. K., & Maudy, D. S. (Eds.), *Monograf didactical design research*. Bandung: Rizqi Press.

Suryadi, D. (2018). *Landasan filosofis penelitian desain didaktis (DDR)*. Bandung: Departemen Pendidikan Matematika UPI.

Suryadi, D. (2015). *Didactical design research (DDR)*. [Online]. Tersedia di: https://didi-suryadi.staf.upi.edu/profil.

Tekin, B. (2022). Visualization of algebraic identities in R × R × R = R3 (in Space) at secondary education. *Journal of Educational Issues, 8*(1), 309-330. https://doi.org/10.5296/jei.v8i1.19662

Torbeyns, J., Schneider, M., Xin, Z., & Siegler, R. S. (2015). Bridging the gap: Fraction understanding is central to mathematics achievement in students from three different continents. *Learning and Instruction, 37*, 5-13. https://doi.org/10.1016/j.learninstruc.2014.03.002

Umbara, U., Wahyudin, W., & Prabawanto, S. (2021a). How to predict good days in farming: Ethnomathematics study with an ethnomodelling approach. *JRAMathEdu (Journal of Research and Advances in Mathematics Education), 6*(1), 71-85. https://doi.org/10.23917/jramathedu.v6i1.12065

Umbara, U., Wahyudin., & Prabawanto, S. (2021b). Exploring ethnomathematics with ethnomodeling methodological approach: How does cigugur indigenous people using calculations to determine good day to build houses. *EURASIA Journal of Mathematics, Science and Technology Education, 17*(2), 1-19. https://doi.org/10.29333/ejmste/9673.

Üredi, P., & Doğanay, A. (2023). Developing the skill of associating mathematics with real life through realistic mathematics education: An action research. *Journal of Theoretical Educational Science, 16*(2), 394-422

Widodo, S., & Kartikasari, K. (2017). Pembelajaran pemecahan masalah matematis siswa sekolah dasar dengan model creative problem solving (CPS). *Prisma, 6*(1), 57-65. https://doi.org/10.35194/jp.v6i1.28.

Weng, T. S., & Yang, D. C. (2017). Research on mathematical animation using pascal animation as an example. *EURASIA Journal of Mathematics, Science and Technology Education, 13*(6), 1687-1699. https://doi.org/10.12973/eurasia.2017.00692a

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ANALYSIS OF PRIMARY SCHOOL TEACHERS' COMPETENCIES AND CONCERNS ABOUT CLASSROOM MANAGEMENT BY SOME VARIABLES

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Abstract

This empirical study focuses on the examination of concerns and competencies related to classroom management among primary school teachers. The data were collected during the 2022-2023 academic year from a sample omprised of primary school teachers in Demirci-Türkiye. The study employed two distinct scales, denoted as the "Classroom Management Concerns Scale" and the "Classroom Management Competency Scale" to measure their classroom management concerns and competencies. Notably, the study encompassed the entire target population without the utilization of sampling techniques. Regarding the specific sub-problems addressed in this study, no statistically significant differences were observed concerning the gender of the participants. However, significant differences in professional seniority were found, particularly in the dimensions of relationship management, instructional management, and time management, as well as in the overall scores of classroom management competencies. Furthermore, significant differenceswere detected in relationship management in relation to the graduates' academic fields. In addition, the participants' respective grade levels of teaching demonstrated significant differences in the realm of relationship management. In the final sub-problem analysis, a negative and weak correlation was found between the dimension of communication concerns and behavior management. To conclude, the findings derived from this comprehensive investigation were subjected to meticulous interpretation, and a series of pragmatic recommendations were proposed for both the academic field and practical application.

Keywords: Primary school teachers, classroom management concerns, classroom management competencies.

INTRODUCTION

Today, the teaching profession is defined as a field of endeavour related to education that has social, cultural, economic, scientific and technological dimensions and requires specialized knowledge and several professional competencies (Şişman & Acat, 2003). Primary school teaching, unlike other teaching, plays a vital role in guiding students at the beginning of their educational life, providing basic skills and contributing to their development (Aksoy, 2022). Apart from these roles, teachers have important responsibilities and competencies such as making the classroom suitable for teaching, facilitating learning in the classroom, selecting and using methods and teaching materials appropriate to the structure of the subject and they are also responsible for the readiness of the students, education of the educated manpower that is necessary to ensure development, implementation of the educational policies of the state, and revealing the potential of the individual (Ünsal, 2021). These competencies are important for primary school teachers to provide an effective learning environment and support students to learn successfully.

Developing classroom management skills is a critical factor in ensuring the efficient functioning of the classroom environment as well as contributing to the academic and social development of students (Darling-Hammond & Cook-Harvey, 2018). The main purpose of classroom management for primary school teachers is to make learning in the classroom environment more positive and to make this process free from boredom (Gezen, 2021). In other words, classroom management is the process of making students' learning enjoyable, creating a warm learning climate in the classroom, and creating an environment where students feel free while doing these (Turan, 2020).

Primary school teachers' classroom management competencies and instructional skills can greatly affect students' learning experiences (Emmer & Stough, 2001; Evertson & Weinstein, 2006). Teachers who have good classroom management skills can maintain discipline in the classroom, gather students' attention and create an effective learning environment. However, teachers with high classroom management concerns may have difficulty in maintaining order in the classroom, may have difficulty in dealing with students' behavioural problems and may not be able to create an effective learning environment (Çelik, 2019; Doğan et al., 2014; Korkut, 2009; Paliç & Keleş, 2011; Sevce, 2017).

Classroom Management Concerns

Classroom management anxiety can be defined as the feeling that teachers feel about managing the difficulties they face in the classroom environment. These concerns arise from the difficulties that teachers experience such as student behaviour, discipline, motivation, student participation, and classroom order (Gezen, 2021; Özkul, 2021; Önder & Önder, 2018).

One of the primary classroom management concerns of teachers is maintaining discipline in the classroom (Öztürk & Gangal, 2016; Çiftçili, 2009). Behavioural problems, conflicts between students or maintaining classroom order can be challenging. Teachers may be concerned about developing effective strategies to manage negative behaviours, enforce rules, and increase student motivation (McGarr, 2021). Teachers may have concerns about keeping students actively engaged and motivated in the classroom (Taşgin & Tunç, 2018). It may be difficult to engage some students or encourage classroom interaction. In this case, teachers can try to make lessons more interactive and interesting by using different teaching methods (Beers & Bowden, 2005).

Teachers may be concerned about meeting the individual needs of each student in the classroom (Can, 2004). Students may have different learning styles, speeds and difficulties. They should make an effort to recognize students, understand their needs and use differentiated instructional strategies (Huang, 2020; Suswandari et al., 2020).

Teachers may be concerned about communicating effectively with students, parents and other teachers. Effective communication requires teachers to convey their messages clearly and concisely and to understand and cooperate with students and parents. It is important to make efforts to improve communication skills and create positive communication environments (Nacar & Tümkaya, 2011; Yıldız et al., 2022; Redfield, 2022).

Primary school teachers may be concerned about time management as they have to fulfil many different tasks in the classroom. It can be difficult to balance many tasks such as lesson planning, organizing assignments, assessment and feedback processes. Teachers should manage and prioritize their workload by using effective time management strategies (Gözel & Halat, 2010; Boyraz & Kocabaş, 2018; Vatansever & Fırat, 2019).

Classroom Management Competency

Primary school teachers' classroom management competencies include skills such as ensuring that students learn in an orderly environment in the classroom, managing discipline, communicating effectively and encouraging students' participation (Igwe & Amirize, 2023). In this direction, one of the competencies to be followed in the classroom is rules and routines. Primary school teachers should set clear and consistent rules in the classroom and communicate these rules clearly to students.

They should also ensure that students understand the expectations by creating daily routines. The teacher should monitor compliance with rules and routines and take disciplinary measures when necessary (Franklin & Harrington 2019). In addition, another competency in classroom management should be related to communication skills. Primary school teachers should establish a safe, supportive and positive relationship with students. They should communicate effectively with students using communication skills such as empathy, understanding, openness and effective listening. It is important to understand the emotional needs of students and provide them with appropriate support (McDonnough & Matkins 2010).

Classroom management competencies of primary school teachers include classroom organization and time management (Zou, 2020). They should have planning, organizing and time management skills to ensure classroom order. They should ensure that students focus on activities by making physical arrangements in the classroom. They should also follow lesson plans, use time effectively, and meet curriculum requirements (Aksela & Haatainen, 2019). Primary school teachers should use a variety of teaching strategies to manage students with different learning styles and levels. They should provide different materials, assignments and assessment methods following students' needs and interests (Gipps et al., 2015; Sydorenko et al., 2023).

Another classroom management competency is teachers' problem–solving skills. A qualified primary school teacher should develop problem–solving skills to solve potential problems in the classroom quickly and effectively (Şanlı, 2019; Serin, 2010). They should manage conflicts among students, deal with behavioral problems and use appropriate classroom management strategies in the classroom (Arı et al., 2016; Heydenberk & Heydenberk, 2007). In addition, in the context of effective classroom management competencies of primary school teachers, they should use various strategies to encourage students' active participation in the lesson. They should create opportunities for students to share their ideas, participate in group work, and participate in interactive activities in the classroom (Şenyiğit & Serin, 2022; Vincent, et al., 2009). This study aims to present empirical data to support this theoretically determined relationship in the literature. Thus, it is thought that, in future studies, the effects of research aimed at increasing teachers' classroom management competencies on classroom management concerns can be seen in a healthier way.

Problem Statement

"What is the relationship between classroom management concerns of primary school teachers and their competencies in terms of some variables?"

Within the scope of the problem statement, the examination of some variables according to classroom management concerns and competencies of primary school teachers was tried to be identified with the subproblem statements below.

Sub–Problem Statements

1. To what extent do primary school teachers exhibit classroom management concerns and competencies?
2. Do statistically significant disparities exist in the classroom management concerns and competencies of primary school teachers based on their genders?
3. Is there a statistically significant difference in the classroom management concerns and competencies of primary school teachers based on their professional seniorities?
4. Are there statistically significant variations in the classroom management concerns and competencies of primary school teachers based on their fields of graduation?
5. Is there a statistically significant difference in the classroom management concerns and competencies of primary school teachers based on their teaching grade levels?
6. To what extent is there a correlation between the classroom management concerns and competencies of primary school teachers?

METHOD

In this section, sub-problems, model of the study, population and sample, data collection tools of the study, data collection process and data analysis of the study are explained.

Model of the Study

This study benefits from the quantitative research method by using a general survey model. When the subject of the study is conducted over the whole population or the sample, a general survey model is used (Karasar, 2012; Şimşek, 2012). Quantitative research is empirical research in which observations and measurements are repeated in order to measure material facts and to reveal the cause–and–effect relationship between variables based on trials, observations and experiments (Yıldız, 2019). The general survey model is a research approach that aims to describe the past or present situation as it is. The event, individual or object that is the subject of the research is tried to be defined in its own conditions (Kuzu, 2013; Yurdakul, 2013).

Population and Sample of the Study

The study was about classroom management concerns and competencies of primary school teachers. With respect to this, the study was carried out with the primary school teachers working in the Demirci District of Manisa Province. The population of the study is primary school teachers working in Demirci District in the 2022 – 2023 Education Year. In this period, there have been 129 primary school teachers working in Demirci District. The whole population was reached without benefitting from any sampling method. The frequencies of the participants of the study have been given in Table 1 by their professional seniorities and genders.

Table 1. Participants of the study.

Professional Seniority / Gender	Female *(f)*	Male *(f)*	Total *(f)*
0 – 5 Years	19	5	24
6 – 10 Years	7	7	14
11 – 15 Years	22	9	31
16 – 20 Years	16	11	27
21 Years and above	22	11	33
Total *(f)*	86	43	129

Data Collection Tools of the Study

In this study "*Classroom Management Concerns Scale*" (Özkul & Dönmez, 2019) and "*Classroom Management Competency Scale*" (Elçiçek, Kinay, & Oral, 2015) have been used for collecting data.

Classroom Management Concerns Scale has been developed for the purpose of determining the classroom management concerns of teachers. With the help of a literature review, 47 items have been formed and the items have been revised by 4 teaching staff from Malatya İnönü University, Faculty of Education. According to the received expert opinions 8 items have been eliminated and the rest of the 39 items have been formed in 5-point Likert's Type Format with the content validity. The pre-form has been filled in by 400 teacher candidates from Malatya İnönü University, Faculty of Education last year students in the 2018 – 2019 academic year. Incompletely or incorrectly filled 37 forms have been eliminated and the rest of 367 forms have been used for the analyses (190 forms for exploratory factor analysis – EFA, 173 forms for confirmatory factor analysis – CFA).

Kaiser – Meyer – Olkin (KMO) and Bartlett tests were used to test the suitability of the data obtained from teacher candidates for factor analysis. After this stage, within the scope of validity studies, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), total item correlations, and lower-upper (27%) group mean difference were calculated. Promax, one of the oblique rotation methods, was preferred for exploratory factor analysis. In order to determine the reliability of the scale, Cronbach Alpha internal consistency coefficient and test-retest correlations were calculated. Various computer programs (SPSS and AMOS) were used while conducting the reliability and validity studies of the scale.

Examining the construct validity of a scale is important in terms of analyzing the relationships between scale items and covering the area that the items are related to. With Kaiser – Meyer – Olkin sample adequacy test (KMO = .95) and Bartlett's Test of Sphericity (Bartlett's Test of Sphericity= 5437.499, *df*=276, p = .000) findings, the data has been found suitable for EFA.

During exploratory factor analysis, ProMax rotation has been used and three dimensions have been yielded with twenty – three items. Factor loadings of the items were observed between ".449" and ".828". A factor extracted explained 65.835% of the total variance. Then the three dimensions of the scale were examined if they were appropriate or not for the confirmatory factor analysis. The goodness of fit indexes (CMIN=449.78, *df*=221, RMSEA=.053, GFI=.91, AGFI= .88, CFI=.96, NFI=.93, IFI=.96, RMR=.044) presented that the construct validity of the scale was achieved. Cronbach Alpha coefficient of the scale has been obtained as ".960". With 30 teacher candidates, three-week intervals test-retest scores (.827) were obtained and it was found reliable. The final version of the scale has been served for the usage in this structure with the dimension names as *time management concern* (4 items with possible with getting 4 minimum and 20 maximum points), *motivation concern* (8 items with possible with getting 8 minimum and 40 maximum points), *communication concern* (11 items with possible with getting 11 minimum and 55 maximum points).

The *Classroom Management Competency Scale* has been developed for the purpose of determining the classroom management competencies of the teachers. Two groups, which consisted of 763 teacher candidates from Dicle University, Faculty of Education, attended the study. With the first study group (450 teacher candidates who had completed class management successfully), a 56-item pool was prepared with their observations and views. While determining 56 items, 162 sentences from the first study group were selected and these selected sentences were put into 56 items according to the literature review. In accordance with the views of four experts, 5 items were eliminated, 3 items were changed and the study was carried out with 51 items in 5-point Likert's Type Format as provided in the content validity.

Construct validity of the scale was examined via SPSS 20 and Lisrel 8.54 package programs with the help of EFA and CFA. Kaiser – Meyer – Olkin sample adequacy test (KMO=.95) and Bartlett's Test of Sphericity (p<.05. *df*=435) showed that the data was suitable for EFA and CFA. As a result of EFA, a structure that explains 52% of the total variance and consists of 30 items in 5 dimensions was obtained. The first dimension was named as "*relationship management*" (9 items - 9 minimum and 45 maximum points), the second dimension as "*management of instruction*" (7 items - 7 minimum and 35 maximum points), the third dimension as "*behaviour management*" (6 items - 6 minimum and 30 maximum points), the fourth dimension as "*physical order management*" (5 items - 5 minimum and 25 maximum points) and the fifth dimension as "*time management*" (3 items - 3 minimum and 15 maximum points). With CFA, Goodness of fit indexes (MSEA=.047, SRMR=.057, GFI=.88, AGFI=.85, CFI=.97, IFI=.97, NFI=.93, x^2/df=1.67) presented that the construct validity of the scale was achieved. Cronbach Alpha coefficient of the scale was obtained as ".870". A reliability coefficient of .50 and above was obtained for the whole scale and its sub-dimensions, and it has been put into use as a valid and reliable measurement tool.

Data Collection Process and Analysis

Classroom management is one of the important factors in sustaining an effective educational process, and teachers sometimes have concerns in classroom management. The researchers had an interest in how teachers' classroom management concerns affect their competencies while managing their classes. Accordingly, they decided to cary out a study and reached the data collection tools about classroom management concerns and classroom management competencies. After getting permission from the responsible authors of the scales, the researchers made an application to the MCBU Ethics Committee and the ethics permission procedure has been completed with the formal permission (MCBU Ethics Committee – 14.12.2022 – E – 050.01.04 – 447005).

The data was collected online via Google Forms. The data collection forms consisted of three sections labeled as personal information, classroom management concerns and classroom management competencies Teachers in the study group participated in the study voluntarily.

The SPSS 25 software was utilized to analyse the data collected from the participants and the significance level was accepted as .05. Firstly, the data was analyzed with normality tests. With the help of skewness and kurtosis values, the data has been regarded as normally distributed with its -1.5 and +1.5 values as Tabachnick and Fidell (2013) pointed out. Concerning this, the data, which presented a normal distribution, was analyzed through parametric tests. During the analysis, the descriptive statistics were examined via arithmetic mean, minimum, maximum and standard deviation values. According to the sub-problem statements, the significant differences in terms of their genders and graduation fields were analyzed through an independent sample t-test and the significant differences related to their professional seniorities and their grade levels of teaching were analyzed with one-way ANOVA. The direction of significant differences was found via arithmetical means in the independent sample t-test and with the Scheffe Post-Hoc Test in one-way ANOVA Analysis. The relationship between classroom management concerns and the competencies of primary school teachers was analyzed with the help of the Pearson Correlation Coefficient Interval.

RESULTS

According to the problem statement, the sub-problems were analyzed and the results are given in this part.

The First Sub – Problem

The first sub-problem is expressed as "To what extent do primary school teachers exhibit classroom management concerns and competencies?" and the results are given below.

Table 2. Classroom management concerns of primary school teachers.

Dimensions / Scale	n	Minimum	Maximum	Mean	Std.Dev.
Time management concern (4 items)	129	1.00	5.00	3.44	1.04
Motivation concern (8 items)	129	1.12	5.00	3.66	.99
Communication concern (11 items)	129	1.00	5.00	3.67	1.24
Classroom Management Concerns (23 items)	129	1.13	5.00	3.62	1.03

The arithmetic means of primary school teachers' total "Classroom Management Concerns" score was found as 3.62 (mostly). The mean scores for the sub-dimensions were calculated as 3.44 (mostly) for "Time Management Concern", 3.66 (mostly) for "Motivation Concern", and 3.67 (mostly) for "Communication Concern". The highest mean scores belonging to the whole scale were found as 3.99 (mostly) for the item "*It worries me when students don't take the lesson seriously*", 3.91 (mostly) for the item "*It worries me not being able to change students' undesirable behaviour*", and 3.87 (mostly) for the item "*It worries me not being able to motivate students who are reluctant to the lesson*". The The lowest mean scores belonging to the whole scale were found as 3.31 (mostly) for the item "*It worries me not being able to train different activities within the course period*", 3.33 (mostly) for the item "*It worries me the thought that students will get bored while lecturing*", and 3.36 (mostly) for the item "*It worries me not being able to complete my lessons within the scheduled time frame*".

Table 3. Classroom management competencies of primary school teachers.

Dimensions / Scale	n	Minimum	Maximum	Mean	Std.Dev.
Relationship management competency (9 items)	129	3.00	5.00	4.24	.49
Management of instruction competency (7 items)	129	3.00	5.00	4.06	.47
Behaviour management competency (6 items)	129	1.66	5.00	3.71	.50
Physical order management competency (5 items)	129	2.20	5.00	4.09	.55
Time management competency (3 items)	129	3.00	5.00	4.12	.52
Classroom Management Competency (30 items)	129	3.03	5.00	4.05	.40

The arithmetic mean of primary school teachers' total "Classroom Management Competencies" scores was calculated as 4.05 (mostly). The mean scores for the sub-dimensions were found as 4.24 (always) for "Relationship Management Competency"; 4.06 (mostly) for "Management of Instruction Competency"; 3.71 (mostly) for "Behavior Management Competency"; 4.09 (mostly) for "Physical Order Management Competency" and 4.12 (mostly) for "Time Management Competency". The highest mean scores belonging to the whole scale were found as 4.49 (always) for the item "*I act fairly in giving students a voice*", 4.40 (always) for the item "*I pay attention to the start and end times of the lesson*" and 4.39 (always) for the item "*I get the opinions of the students while determining the classroom rules*". The lowest mean scores belonging to the whole scale were found as 3.05 (sometimes) for the item "*I punish students who disrupt the classroom order*", 3.19 (sometimes) for the item "*I am more interested in students with good levels*" and 3.87 (mostly) for the item "*I prevent students from being distracted*".

The Second Sub-problem

The second sub-problem is expressed as "Do statistically significant disparities exist in the classroom management concerns and competencies of primary school teachers based on their genders?" and the results are given below.

Table 4. Independent samples *t*-test of classroom management concerns according to the genders of primary school teachers.

Dimensions / Scale	Genders	n	Mean	Std.Dev.	*Independent samples t-test* t	df	p
Time management concern	Female	86	3.42	1.115	-.311	127	.756
	Male	43	3.48	.902			
Motivation concern	Female	86	3.61	1.031	-.807	127	.421
	Male	43	3.76	.912			
Communication concern	Female	86	3.58	1.294	-1.122	127	.264
	Male	43	3.84	1.123			
Classroom Management Concerns	Female	86	3.56	1.086	-.970	127	.334
	Male	43	3.75	.912			

*p<.005

Classroom management concerns presented no significant differences according to the genders of primary school teachers both for the whole scale and its sub-dimensions. Results show that time management concerns ($t_{[127]}$=.756; p>.05), motivation concerns ($t_{[127]}$=.421; p>.05), communication concerns ($t_{[127]}$=.264; p>.05) and classroom management concerns ($t_{[127]}$=.334; p>.05) mean scores presented no meaningful differences according to the genders of primary school teachers.

Table 5. Independent sample *t*-test of classroom management competencies according to the genders of primary school teachers.

Dimensions / Scale	Genders	n	Mean	Std.Dev.	*Independent samples t-test* t	df	p
Relationship management competency	Female	86	4.23	.493	-.280	127	.780
	Male	43	4.26	.498			
Management of instruction competency	Female	86	4.05	.483	-.337	127	.737
	Male	43	4.08	.457			
Behavior management competency	Female	86	3.71	.499	-.061	127	.952
	Male	43	3.72	.535			
Physical order management competency	Female	86	4.04	.571	-1.333	127	.185
	Male	43	4.18	.507			
Time management competency	Female	86	4.10	.539	-.391	127	.696
	Male	43	4.14	.510			
Classroom Management Competency	Female	86	4.04	.417	-.568	127	.571
	Male	43	4.08	.369			

*p<.005

Classroom management competencies presented no significant differences according to the genders of primary school teachers both in the whole scale and in its sub-dimensions. Results also show that

relationship management competency ($t_{[127]}$=.780; p>.05), management of instruction competency ($t_{[127]}$=.737; p>.05), behaviour management competency ($t_{[127]}$=.952; p>.05), physical order management competency ($t_{[127]}$=.185; p>.05), time management competency ($t_{[127]}$=.696; p>.05) and classroom management competencies ($t_{[127]}$=.571; p>.05) had no significant differences in terms of genders of primary school teachers.

The Third Sub-problem

The third sub-problem is expressed as "Is there a statistically significant difference in the classroom management concerns and competencies of primary school teachers based on their professional seniorities" and the results are given below.

Table 6. One-way ANOVA analysis of classroom management concerns according to the professional seniorities of primary school teachers.

Dimensions / Scale	Professional Seniorities	n	Mean	Std.Dev.	F	p
Time management concern	5 years and below	24	3.43	.850	.370	.829
	6-10 years	14	3.53	.758		
	11-15 years	31	3.60	.952		
	16-20 years	27	3.37	1.125		
	21 years and above	33	3.31	1.300		
Motivation concern	5 years and below	24	3.73	.736	.911	.460
	6-10 years	14	3.46	.846		
	11-15 years	31	3.88	1.003		
	16-20 years	27	3.68	1.096		
	21 years and above	33	3.45	1.106		
Communication concern	5 years and below	24	3.93	.850	1.479	.212
	6-10 years	14	3.50	1.215		
	11-15 years	31	3.86	1.119		
	16-20 years	27	3.78	1.270		
	21 years and above	33	3.26	1.509		
Classroom Management Concerns	5 years and below	24	3.78	.693	1.132	.345
	6-10 years	14	3.49	.885		
	11-15 years	31	3.82	.956		
	16-20 years	27	3.68	1.087		
	21 years and above	33	3.34	1.276		

*p<.005

Classroom management concerns presented no significant differences according to the professional seniorities of primary school teachers both for the whole scale and its sub-dimensions. Results show that time management concerns (F=.370, p>.05), motivation concerns (F=.911, p>.05), communication concerns (F=1.479, p>.05) and classroom management concerns (F=1.132, p>.05) had no significant differences according to the professional seniorities of primary school teachers.

Table 7. One-way ANOVA analysis of classroom management competencies according to the professional seniorities of primary school teachers.

Dimensions / Scale	Professional Seniorities	n	Mean	Std.Dev.	F	p
Relationship management competency	5 years and below	24	3.96	.497	.4650	.002
	6-10 years	14	4.00	.442		
	11-15 years	31	4.31	.400		
	16-20 years	27	4.36	.428		
	21 years and above	33	4.40	.537		
Management of instruction competency	5 years and below	24	3.75	.508	.4367	.002
	6-10 years	14	3.91	.248		
	11-15 years	31	4.15	.417		
	16-20 years	27	4.18	.442		
	21 years and above	33	4.16	.502		

Table 7 (Continued). One-way ANOVA analysis of classroom management competencies according to the professional seniorities of primary school teachers.

Dimensions / Scale	Professional Seniorities	n	Mean	Std.Dev.	F	p
Behavior management competency	(1) 5 years and below	24	3.57	.483	1.280	.282
	(2) 6-10 years	14	3.73	.373		
	(3) 11-15 years	31	3.69	.498		
	(4) 16-20 years	27	3.66	.546		
	(5) 21 years and above	33	3.86	.544		
Physical order management competency	(1) 5 years and below	24	3.83	.617	1.932	.109
	(2) 6-10 years	14	4.10	.569		
	(3) 11-15 years	31	4.09	.505		
	(4) 16-20 years	27	4.22	.377		
	(5) 21 years and above	33	4.17	.624		
Time management competency	(1) 5 years and below	24	3.79	.527	6.958	.000
	(2) 6-10 years	14	3.90	.331		
	(3) 11-15 years	31	4.04	.514		
	(4) 16-20 years	27	4.29	.541		
	(5) 21 years and above	33	4.38	.425		
Classroom Management Competency	(1) 5 years and below	24	3.79	.436	4.775	.001
	(2) 6-10 years	14	3.93	.282		
	(3) 11-15 years	31	4.09	.338		
	(4) 16-20 years	27	4.15	.330		
	(5) 21 years and above	33	4.19	.437		

*p<.005

Classroom management competencies presented no significant differences according to the professional seniorities of primary school teachers in the behaviour management competency sub-dimension (F=1.280, p>.05) and physical order management competency sub-dimension (F=1.932, p>.05). Significant differences were found in the relationship management competency (F=4.650, p<.05), management of instruction competency (F=4.367, p<.05), and time management competency sub-dimensions (F=6.958, p<.05) in addition to the classroom management competency whole scale (F=4.775, p<.05).

Table 8. Scheffe test results of classroom management competencies according to the professional seniorities of primary school teachers.

Dimensions / Scale	Variance	Sum of Squares	df	Mean Square	F	p	Meaningful differences (Scheffe Test)
Relationship management competency	Between Groups	328.686	4	82.172	.4650	.002*	1 – 5
	Within Groups	2191.236	124	17.671			
	Total	2519.922	128				
Management of instruction competency	Between Groups	173.573	4	43.393	.4367	.002*	1 – 3 1 – 4 1 – 5
	Within Groups	1232.241	124	9.937			
	Total	1405.814	128				
Time management competency	Between Groups	59.001	4	14.750	6.958	.000*	1 – 4 1 – 5
	Within Groups	262.875	124	2.120			
	Total	321.876	128				
Classroom Management Competency	Between Groups	2474.849	4	618.712	4.775	.001*	1 – 4 1 – 5
	Within Groups	16065.910	124	129.564			
	Total	18540.760	128				

*p<.005

As is seen in Table 8, according to the Scheffe test results, the meaningful difference was in favour of the 21 years and above professional seniority group (Mean=39.61) when compared to the 5 years and below professional seniority group (Mean=35.67) in the relationship management competency sub-dimension. In the management of instruction competency sub-dimension, the significant difference was in favour of the 21 years and above professional seniority group (Mean=29.12), the 16

and 20 years professional seniority group (Mean=29.30) and the 11 years and 15 years professional seniority group (Mean=29.10) when compared to the 5 years and below professional seniority group (Mean=26.29). In the time management competency sub-dimension, the significant difference was in favour of the 21 years and above professional seniority group (Mean=13.15), the 16 and 20 years professional seniority group (Mean=12.89) compared to the 5 years and below professional seniority group (Mean=11.38). Lastly, the significant difference was in favour of the 21 years and above professional seniority group (Mean=125.97) and the 16 and 20 years professional seniority group (Mean=124.56) in the classroom management competency whole scale when compared to 5 years and below professional seniority group (Mean=113.96).

The Fourth Sub-Problem

The fourth sub-problem was expressed as "Are there statistically significant variations in the classroom management concerns and competencies of primary school teachers based on their fields of graduation?" and the results are given below.

Table 9. Independent sample t-test of classroom management concerns according to the graduation fields of primary school teachers.

Dimensions / Scale	Graduation Fields	n	Mean	Std.Dev.	*Independent sample t-test*		
					t	df	p
Time management concern	Primary school teaching field	113	3.41	1.070	-.875	127	.383
	Other fields	16	3.65	.850			
Motivation concern	Primary school teaching field	113	3.65	1.022	-.144	127	.886
	Other fields	16	3.69	.766			
Communication concern	Primary school teaching field	113	3.63	1.276	-.802	127	.424
	Other fields	16	3.90	.957			
Classroom Management Concerns	Primary school teaching field	113	3.60	1.060	-.663	127	.509
	Other fields	16	3.78	.812			

*p<.005

Classroom management concerns did not present significant differences according to the graduation fields of primary school teachers both in the whole scale and in its sub-dimensions. Results show that time management concerns ($t_{[127]}$=.383; p>.05), motivation concerns ($t_{[127]}$=.886; p>.05), communication concerns ($t_{[127]}$=.424; p>.05) and classroom management concerns ($t_{[127]}$=.509; p>.05) did not have significant differences in terms of graduation fields of primary school teachers.

Table 10. Independent sample t-test of classroom management competencies according to the graduation fields of primary school teachers.

Dimensions / Scale	Graduation Fields	n	Mean	Std.Dev.	*Independent sample t-test*		
					t	df	p
Relationship management competency	Primary school teaching field	113	4.28	.494	2.103	127	.037*
	Other fields	16	4.00	.426			
Management of instruction competency	Primary school teaching field	113	4.84	.465	1.381	127	.170
	Other fields	16	3.91	.518			
Behavior management competency	Primary school teaching field	113	3.73	.519	1.299	127	.196
	Other fields	16	3.56	.416			
Physical order management competency	Primary school teaching field	113	4.09	.541	.054	127	.957
	Other fields	16	4.08	.648			
Time management competency	Primary school teaching field	113	4.12	.538	.307	127	.759
	Other fields	16	4.08	.463			
Classroom Management Competency	Primary school teaching field	113	4.08	.395	1.534	127	.127
	Other fields	16	3.91	.423			

*p<.005

Classroom management competencies had no significant differences in terms of graduation fields of primary school teachers both in the whole scale and in its sub-dimensions except relationship management competency ($t_{[127]}$=.037; p<.05) which is in favour of primary school teaching field (Mean=38,52) than other graduation fields (Mean=36,06). Results show that management of instruction competency ($t_{[127]}$=.170; p>.05), behaviour management competency ($t_{[127]}$=.196; p>.05), physical order management competency ($t_{[127]}$=.957; p>.05), time management competency ($t_{[127]}$=.759; p>.05) and classroom management competencies ($t_{[127]}$=.127; p>.05) presented no significant differences in terms of graduation fields of primary school teachers.

The Fifth Sub-Problem

The fifth sub-problem was expressed as "Is there a statistically significant difference in the classroom management concerns and competencies of primary school teachers based on their teaching grade levels?" and the results are given below.

Table 11. One-way ANOVA analysis of classroom management concerns according to the primary school teachers' grade levels of teaching.

Dimensions / Scale	Grade Levels of Teaching	n	Mean	Std.Dev.	F	p
Time management concern	1st Grades	39	3.50	1.112	.492	.688
	2nd Grades	24	3.33	1.134		
	3rd Grades	29	3.59	1.035		
	4th Grades	37	3.32	.938		
Motivation concern	1st Grades	39	3.77	.960	1.056	.371
	2nd Grades	24	3.84	.956		
	3rd Grades	29	3.63	.945		
	4th Grades	37	3.44	1.076		
Communication concern	1st Grades	39	3.74	1.256	1.827	.146
	2nd Grades	24	3.98	1.138		
	3rd Grades	29	3.78	1.125		
	4th Grades	37	3.29	1.331		
Classroom Management Concerns	1st Grades	39	3.71	1.068	1.334	.266
	2nd Grades	24	3.82	.995		
	3rd Grades	29	3.70	.954		
	4th Grades	37	3.35	1.060		

*p<.005

Classroom management concerns presented no significant differences according to the primary school teachers' grade levels of teaching both in the whole scale and in its sub-dimensions. Results show that time management concerns (F=.492, p>.05), motivation concerns (F=1.056, p>.05), communication concerns (F=1.827, p>.05) and classroom management concerns (F=1.334, p>.05) had no significant differences in terms of primary school teachers' grade levels of teaching.

Table 12. One-way ANOVA analysis of classroom management competencies according to the primary school teachers' grade levels of teaching.

Dimensions / Scale	Grade Levels of Teaching	n	Mean	Std.Dev.	F	p
Relationship management competency	(1) 1st Grades	39	4.05	.483	3.171	.027*
	(2) 2nd Grades	24	4.31	.596		
	(3) 3rd Grades	29	4.40	.421		
	(4) 4th Grades	37	4.27	.436		
Management of instruction competency	(1) 1st Grades	39	3.93	.480	1.690	.173
	(2) 2nd Grades	24	4.17	.551		
	(3) 3rd Grades	29	4.14	.438		
	(4) 4th Grades	37	4.05	.422		
Behavior management competency	(1) 1st Grades	39	3.64	.497	1.430	.237
	(2) 2nd Grades	24	3.61	.478		
	(3) 3rd Grades	29	3.73	.435		
	(4) 4th Grades	37	3.84	.581		

Table 12 (Continued). One-way ANOVA analysis of classroom management competencies according to the primary school teachers' grade levels of teaching.

Dimensions / Scale	Grade Levels of Teaching	n	Mean	Std.Dev.	F	p
Physical order management competency	(1) 1st Grades	39	3.95	.603	1.679	.175
	(2) 2nd Grades	24	4.27	.600		
	(3) 3rd Grades	29	4.11	.533		
	(4) 4th Grades	37	4.10	.456		
Time management competency	(1) 1st Grades	39	4.05	.521	.609	.611
	(2) 2nd Grades	24	4.19	.572		
	(3) 3rd Grades	29	4.19	.530		
	(4) 4th Grades	37	4.09	.513		
Classroom Management Competency	(1) 1st Grades	39	3.93	.428	2.060	.109
	(2) 2nd Grades	24	4.12	.473		
	(3) 3rd Grades	29	4.14	.331		
	(4) 4th Grades	37	4.09	.350		

*p<.005

Classroom management competencies presented no significant differences according to the primary school teachers' grade levels of teaching in the management of instruction competency sub-dimension (F=1.690, p>.05), in behaviour management competency sub-dimension (F=1.430, p>.05), in physical order management competency sub-dimension (F=1.679, p>.05), in time management competency sub-dimension (F=.609, p>.05) and classroom management competency whole scale (F=2.060, p>.05). According to the primary school teachers' grade levels of teaching, a significant difference was observed in relationship management competency sub-dimension (F=3.171, p<.05).

Table 13. Scheffe test results of classroom management competencies according to the primary school teachers' grade levels of teaching.

Dimensions / Scale	Variance	Sum of Squares	df	Mean Square	F	p	Meaningful differences (Scheffe Test)
Relationship management competency	Between Groups	178.201	3	59.400	3.171	.027*	1 – 3
	Within Groups	2341.721	125	18.734			
	Total	2519.922	128				

*p<.005

According to the Scheffe test results in the relationship management competency sub-dimension, the significant difference was in favour of primary school teachers' grade levels teaching at 3rd Grades (Mean=39.62) when compared to Grades (Mean=36.54).

The Sixth Sub-Problem

The sixth sub-problem was expressed as "To what extent is there a correlation between the classroom management concerns and competencies of primary school teachers?" and the results are given below.

Table 14. Study group Pearson Correlation Coefficient Interval

Relations between Communication Concerns and Behavior Management Competency	n	r_s	p
Communication concern – Behavior management competency	129	-.187	.034

As is seen in Table 14, a negative low relationship has been found (r_s= -.187, p= .034) between communication concerns and behaviour management competency of primary school teachers according to the Pearson Correlation Coefficient Interval.

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

This study aimed to determine how classroom management concerns have an effect on classroom management competencies within the scope of the problem statement "What is the relationship between classroom management concerns of primary school teachers and their competencies?". The

results related to the sub-problems analyzed respectively depending on the problem statement are discussed in this section.

Regarding the first sub-problem determined as "To what extent do primary school teachers exhibit classroom management concerns and competencies?", the averages of "Classroom Management Concerns" were found to be high. High averages were also obtained for "Time Management Concerns", "Motivation Concerns", and "Communication Concerns", which are the sub-dimensions of the same scale. The high level of classroom management concerns of primary school teachers can lead to many positive results (Kendirci, 2019; Kevser, 2022; Lazarides & Buchholz, 2019). Teachers may tend to manage their classes in an orderly and disciplined manner due to their classroom management concerns (Wolff et al., 2021; Weinstein et al., 2004). This allows students to have a better working environment and helps them focus on the learning process (Aküzüm & Nazlı, 2017; Hawken et al., 2007; Sadık & Aslan, 2015). Teachers with classroom management concerns tend to use various teaching strategies to transfer knowledge to students effectively (Hoy & Weinstein, 2013; Marzano et al., 2003; Süral, 2013). This enables a variety of methods to be used to attract students' attention, stimulate learning and increase their participation. Teachers with high classroom management concerns are better prepared to prevent and manage negative behaviours. Students have fewer discipline problems and a more positive atmosphere is provided in the classroom environment (Gaias et al., 2019; Reupert & Woodcock, 2010). Teachers with these qualities are more careful about student safety. Applying rules and maintaining order in the classroom is important to protect the safety of students (Curran, 2019; Keyik, 2014). In addition, primary school teachers' classroom management concerns can help them communicate better with students and parents. Interacting with students to recognise and solve problems in advance is important to support their academic and social development (Graham-Clay, 2005; Hatipoğlu & Kavas, 2016).

Likewise, the arithmetic mean scores of primary school teachers' "Classroom Management Competencies" and the sub-dimensions "Relationship Management Competency", "Instructional Management Competency", "Behaviour Management Competency", "Physical Order Management Competency" and "Time Management Competency" were found to be high. High classroom management competencies of primary school teachers can lead to many positive results. Teachers with high classroom management competencies are effective in keeping students' motivation and interest alive. By providing interesting and interactive lessons for students with, they ensure their active participation in the learning process. This makes students more willing, curious and motivated (Anwer, 2019; Bayrakçeken et al., 2021; Yılmaz et al., 2020). However, primary school teachers with high classroom management skills are successful in creating a positive classroom climate. They encourage positive relationships between students and provide an environment based on respect and tolerance. This environment makes students feel safe and supported (Barr, 2016; Wang, 2020; Yalçın, 2020). Primary school teachers with high classroom management competencies have the ability to manage and prevent behaviour problems effectively. They can resolve conflicts among students, redirect negative behaviours and encourage appropriate behaviours quickly in the classroom. This provides a more peaceful environment in the classroom (Doğan et al., 2014; Korkut & Babaoğlan, 2010).

The second sub-problem was determined as "Do statistically significant disparities exist in the classroom management concerns and competencies of primary school teachers based on their genders?" and the results were given. Classroom management concerns and competencies did not show a significant difference according to the gender of primary school teachers both in the whole scale and in its sub-dimensions. The study revealed that this result was interpreted in a different way. Oktan and Çağanağa (2015) examined the relationship between teachers' classroom management competencies and their gender. The findings showed that female teachers generally had higher classroom management concerns than male teachers. The reasons for this difference may include social expectations, teachers' role perception and teaching experiences. Ahmed et al. (2018), examined the effect of teachers' gender on classroom management strategies. The findings revealed

that female teachers generally set more rules and limitations, showed more empathy, and used more cooperation-oriented strategies. Male teachers, on the other hand, exhibited a more authoritarian approach. However, these generalizations may vary with individual differences and personal preferences of the teacher. In another study, Sarfo et al. (2015) supported the findings of our study. In this study, the effect of teachers' gender on classroom management effectiveness was analysed. The findings showed that gender did not have a direct effect on classroom management effectiveness. However, it was concluded that factors such as improving teachers' classroom management skills, training and experience can affect classroom management effectiveness more.

The third sub-problem of the study was determined as "Is there a statistically significant difference in the classroom management concerns and competencies of primary school teachers based on their professional seniorities?". While classroom management concerns did not present a significant difference in both the whole scale and its sub-dimensions according to the professional seniority of primary school teachers, significant differences were observed in classroom management competencies, relationship management competencies, teaching management competencies, time management competencies sub-dimensions and the whole scale according to the professional seniority of primary school teachers. These findings revealed that professional seniority had a positive effect on primary school teachers' classroom management competencies. Other studies also support these findings (Akar et al., 2010; Berger et al., 2018; Martin et al., 2006; Wolf et al., 2021). It has been observed that experienced teachers generally have better classroom management skills, and as professional seniority increases, teachers develop competencies such as maintaining classroom discipline, motivating students and using effective teaching strategies.

The fourth sub-problem of the study was determined as " Are there statistically significant variations in the classroom management concerns and competencies of primary school teachers based on their fields of graduation?" and it is seen that relationship management competency among classroom management competencies was higher in favour of classroom teaching department compared to other graduation departments. Classroom management competencies depend on many factors such as teachers' individual abilities, experiences, education and personal characteristics. Therefore, differences in classroom management skills can be seen both among primary school teachers and among teachers in different fields. However, primary school teachers usually pay special attention to classroom management skills as they are usually at the beginning of students' educational journey. Primary school-age students often need more guidance, discipline management and emotional support. Therefore, it is common for primary school teachers to benefit from resources such as training programmes, seminars and teaching experiences to improve their classroom management skills (Çelik, 2019; Kendirci, 2019; Özen & Yıldırım, 2020;).

The fifth sub-problem of the study was determined as " Is there a statistically significant difference in the classroom management concerns and competencies of primary school teachers based on their teaching grade levels?" and it was concluded that the average of the teachers teaching in the 3rd grade was higher in the relationship management dimension of classroom management competencies. Each grade level differs in terms of students' age, developmental level and learning needs. Therefore, primary school teachers may develop different skills to apply classroom management strategies at different grade levels and approach students' needs appropriately (Aracı, 2021; Ergen & Elma, 2020; Kendirci, 2019; Zembat & İlçi Küsmüş, 2020). In the lower levels of primary school (1st and 2nd grades), students often need more direction and guidance. Teachers may use strategies such as communicating classroom rules and expectations clearly and planning more interactive and game-based learning activities to sustain students' attention. At higher grade levels (3rd and 4th grades), students' sense of independence and responsibility may increase. In this case, teachers may provide students more autonomy and opportunity, encourage student participation and lead them to co-create classroom rules.

In the study, the sixth sub-problem was determined as "To what extent is there a correlation between the classroom management concerns and competencies of primary school teachers?" and it was seen that there was a low-level negative relationship between the communication anxiety dimension of the classroom management anxiety scale and the behaviour management competencies dimension of the classroom management competencies scale. Relationship anxiety can be defined as worrying, anxiety or lack of self-confidence in the teacher's relationships with students (Fernández-Batanero et al., 2021). Behaviour management is the ability to manage students' behaviour in the classroom and provide a positive classroom environment (Sciuchetti & Yssel, 2019). A teacher with relationship anxiety may have difficulties in his/her relationships with students, may have difficulty in coping with his/her concerns, and may give negative emotional reactions. In this case, the teacher's classroom management skills may be affected and difficulties in behaviour management may occur. Teachers with relationship anxiety may tend to interact less in the classroom, have difficulty in maintaining classroom discipline and have difficulty in establishing authority over students. Studies supporting this view have been conducted (Morris-Rothschild & Brassard, 2006).

It is recommended that the scales used in this study be administered to sample groups belonging to different cultures, as this will provide data on the comparability of the topic. The variables used in this study are generally demographic. It is believed that studies examining teachers' personality traits, parents' status and characteristics, and teacher-student relationships will provide more detailed information on the subject and strengthen the findings of this study. Practical training in classroom management for this age group should be planned for classroom teachers in teacher training and in-service programmes.

Ethics and Conflict of Interest

Manisa Celal Bayar University (MCBU) Ethics Committee and the ethics permission procedure has been completed with the formal permission (MCBU Ethics Committee-14.12.2022-E-050.01.04-447005), before it was put into practice in the data collection process. There are no potential conflicts of interest related to the research, writing and/or publication of this article.

REFERENCES

Ahmed, M., Ambreen, M., & Hussain, I. (2018). Gender differentials among teachers' classroom management strategies in Pakistani context. *Journal of Education and Educational Development, 5*(2), 178-193.

Akar, H. , Erden, F. T. , Tor, D., & Şahin, İ. T. (2010). Öğretmenlerin sınıf yönetimi yaklaşımları ve deneyimlerinin incelenmesi [Investigation of teachers' classroom management approaches and experiences]. *İlköğretim Online, 9*(2), 792-806.

Aküzüm, C., & Nazlı, K. (2017). Sınıf öğretmenlerinin sınıf yönetiminde karşılaştıkları disiplin sorunları, nedenleri ve bu sorunlarla baş etme yöntemlerinin değerlendirilmesi [Evaluation of discipline problems faced by classroom teachers in classroom management, their reasons and methods of coping with these problems]. *International e-Journal of Educational Studies (IEJES), 1*(2), 88-102.

Aksela , M., & Haatainen , O 2019 , Project-Based Learning (PBL) in Practise: Active Teachers' Views of Its' Advantages And Challenges. in *Integrated Education for the Real World*: 5th International STEM in Education Conference Post-Conference Proceedings. Queensland University of Technology, pp. 9–16, International STEM in Education Conference, Brisbane, Australia, 21/11/2018. http://hdl.handle.net/10138/304045

Aksoy, A. (2022). *Öğretmen ve okul müdürlerinin öğretmenlerin mesleki gelişimini değerlendirmesi: Mesleki gelişime güdüleyen ve güdülenmeyi düşüren etmenler* [Teachers' and principals' evaluation of teachers' professional development: Motivating and demotivating factors for professional development]. (Unpublished master's thesis). Aydın Adnan Menderes University.

Aracı, D. D. (2021). *Okul öncesi öğretmenlerinin sınıf yönetimi becerileri ile programdaki etkinliklere yönelik öz yeterlik inançlarının incelenmesi* [Investigation of preschool teachers' classroom management skills and their self-efficacy beliefs towards the activities in the curriculum]. (Unpublished master's thesis). Fatih Sultan Mehmet Foundation University, Graduate School of Education.

Arı, E., Tunçer, B. K., & Demir, M. K. (2016). Primary school teachers' views on constructive classroom management. *International Electronic Journal of Elementary Education*, *8*(3), 363-378.

Anwer, F. (2019). Activity-based teaching, student motivation and academic achievement. *Journal of Education and Educational Development*, *6*(1), 154-170.

Barr, J. J. (2016). Developing a positive classroom climate. *IDEA Paper 61. IDEA Center, Inc.* https://eric.ed.gov/?id=ED573643.

Bayrakçeken, S., Oktay, Ö., Samancı, O., & Canpolat, N. (2021). Motivasyon kuramları çerçevesinde öğrencilerin öğrenme motivasyonlarının arttırılması: bir derleme çalışması [Increasing students' learning motivation within the framework of theories: a review study], *Journal of Social Sciences Institute of Ataturk University*, *25*(2), 677-698.

Beers, G. W., & Bowden, S. (2005). The effect of teaching method on long-term knowledge retention. *Journal of Nursing Education*, *44*(11), 511-514. https://doi.org/10.3928/01484834-20051101-07.

Berger, J. L., Girardet, C., Vaudroz, C., & Crahay, M. (2018). Teaching experience, teachers' beliefs, and self-reported classroom management practices: A coherent network. *SAGE open*, 8(1). https://doi.org/10.1177/2158244017754119.

Boyraz, M., & Kocabaş, İ. (2018). İlkokul öğretmenlerinin zaman yönetimi becerilerinin belirlenmesi [Determination of primary school teachers' time management skills]. *Yıldız Social Sciences Institute Journal*, 2(1), 42-57.

Can, N. (2004). Öğretmenlerin geliştirilmesi ve etkili öğretmen davranışları [Teacher development and effective teacher behaviours]. *Erciyes University Journal of Social Sciences Institute, 1*(16), 103-119.

Çelik, O. (2019). *İlkokul ve ortaokul öğretmenlerinin öz yeterlilikleri ile sınıf yönetimi becerileri arasındaki ilişkinin incelenmesi* [Examining the relationship between primary and secondary school teachers' self-efficacy and classroom management skills]. (Unpublished master's thesis). İstanbul Sabahattin Zaim University.

Çifçili, V. (2009). Sınıf içi disiplinde otorite [Authority in classroom discipline]. *HAYEF Journal of Education*, *6*(1), 91-103.

Curran, F. C., Fisher, B. W., Viano, S., & Kupchik, A. (2019). Why and when do school resource officers engage in school discipline? The role of context in shaping disciplinary involvement. *American Journal of Education*, *126*(1), 33-63. https://doi.org/10.1086/705499.

Darling-Hammond, L., & Cook-Harvey, C. M. (2018). Educating the whole child: Improving school climate to support student success. Learning Policy Institute. https://files.eric.ed.gov/fulltext/ED606462.pdf.

Doğan, S., Uğurlu, C., & Karakaş, H. (2014). Etkili sınıf yönetimi uygulamalarına ilişkin öğretmen görüşlerinin değerlendirilmesi [Evaluation of teachers' views on effective classroom management practices]. *Gaziantep University Journal of Social Sciences*, *13*(4), 1097-1119.

Elçiçek, Z., Kinay, İ., & Oral, B. (2015). Developing teacher candidates' classroom management competency scale: validity and reliability study. *Bartin University Journal of Faculty of Education*, *4*(1), 51-63.

Emmer, E. T., & Stough, L. M. (2001). Classroom management: A critical part of educational psychology, with implications for teacher education. *Educational psychologist*, *36*(2), 103-112. https://doi.org/10.1207/S15326985EP3602_5.

Ergen, Y., & Elma, C. (2020). Sınıf öğretmenlerinin sınıf yönetim becerileri, akademik iyimserlikleri ve mesleki bağlılıkları arasındaki ilişki [The relationship between classroom teachers' classroom management skills, academic optimism and professional commitment.]. *Abant İzzet Baysal University Faculty of Education Journal*, *20*(2), 1222-1239. https://doi.org/10.17240/aibuefd.2020..-656449.

Evertson, C. M., & Weinstein, C. S. (2006). Classroom management as a field of inquiry. *Handbook of classroom management: Research, practice, and contemporary issues*, *3*(1), 3-16.

Franklin, H., & Harrington, I. (2019). A review into effective classroom management and strategies for student engagement: Teacher and student roles in today's classrooms. *Journal of Education and Training Studies*, *7*(12), 1-12. https://doi.org/10.11114/jets.v7i12.4491.

Fernández-Batanero, J. M., Román-Graván, P., Reyes-Rebollo, M. M., & Montenegro-Rueda, M. (2021). Impact of educational technology on teacher stress and anxiety: A literature review. *International Journal of Environmental Research and Public Health*, *18*(2), 548. https://doi.org/10.3390/ijerph18020548.

Gaias, L. M., Johnson, S. L., Bottiani, J. H., Debnam, K. J., & Bradshaw, C. P. (2019). Examining teachers' classroom management profiles: Incorporating a focus on culturally responsive practice. *Journal of School Psychology*, *76*, 124-139. https://doi.org/10.1016/j.jsp.2019.07.017.

Gezen, H. (2021). Determination of classroom management anxiety levels of secondary school teachers and investigation in terms of various variables. In *Biruni University 1st International Congress on Teaching and Teacher Education Full-Text Proceedings Book Icotte2021* 11-12 June 2021 (p. 60).

Gipps, C., Hargreaves, E., & McCallum, B. (2015). *What makes a good primary school teacher?: Expert classroom strategies*. Routledge.

Gözel, E., & Halat, E. (2010). Primary school teachers and time management. *Pamukkale University Journal of Social Sciences Institute, 6*, 73-89.

Graham-Clay, S. (2005). Communicating with parents: Strategies for teachers. *School Community Journal, 15*(1), 117-129.

Hatipoğlu, A., & Kavas, E. (2016). [The effect of parent approaches on teacher performance]. *Itobiad: Journal of the Human & Social Science Researches, 5*(4), 1012-1034.

Hawken, L. S., Sandra MacLeod, K., & Rawlings, L. (2007). Effects of the behavior education program (BEP) on office discipline referrals of elementary school students. *Journal of Positive Behavior Interventions, 9*(2), 94-101. https://doi.org/10.1177/10983007070090020601

Heydenberk, W., & Heydenberk, R. (2007). More than manners: Conflict resolution in primary level classrooms. *Early Childhood Education Journal, 35*, 119-126.

Hoy, A. W., & Weinstein, C. S. (2013). Student and teacher perspectives on classroom management. In *Handbook of classroom management* (pp. 191-230). Routledge.

Huang, S. Y., Kuo, Y. H., & Chen, H. C. (2020). Applying digital escape rooms infused with science teaching in elementary school: Learning performance, learning motivation, and problem-solving ability. *Thinking Skills and Creativity, 37*, 100681.

Igwe, G. C., & Amirize, M. (2023). Classroom management for teachers' instructional effectiveness. *Central Asian Journal of Social Sciences and History, 4*(5), 54-71. https://doi.org/10.17605/OSF.IO/5KMC8

Karasar, N., 2012. *Scientific research method*. 24th Ed. Nobel Academic Publishing.

Kendirci, M. (2019). *Examining the relationship between classroom management skills and motivation of classroom teachers.* (Unpublished master's thesis). Istanbul Sabahattin Zaim University, Institute of Social Sciences, Department of Educational Sciences.

Kevser, Z. (2022). Pedagogical reflections of teachers' professional mistakes. *Asian Journal of Instruction (E-AJI), 10*(2), 57-77. https://doi.org/10.47215/aji.1176977

Keyik, H. (2014). *Classroom management strategies used by first grade primary school teachers in dealing with students' misbehaviours.* (Unpublished master's thesis). Mehmet Akif Ersoy University, Institute of Educational Sciences.

Korkut, K. (2009). *The relationship between classroom teachers' self-efficacy beliefs and classroom management skill perceptions.* (Unpublished master's thesis). Mehmet Akif Ersoy University.

Korkut, K., & Babaoğlan, E. (2010). Classroom management skills of classroom teachers. *Dumlupınar University Journal of Social Sciences, 26*(2), 146-156.

Kuzu, A. (2013). Araştırmaların planlanması [Planning of studies]. In Kurt, A. A. (Ed.), *Bilimsel Araştırma Yöntemleri* [Scientific research methods] (1st Ed., pp. 19 – 46). Anadolu University Publications.

Lazarides, R., & Buchholz, J. (2019). Student-perceived teaching quality: How is it related to different achievement emotions in mathematics classrooms? *Learning and Instruction, 61*, 45-59. https://doi.org/10.1016/j.learninstruc.2019.01.001.

Lenski, S. J., Caskey, M. M., & Anfara Jr, V. A. (2009). Using the lesson study approach to plan for student learning. *Middle School Journal, 40*(3), 50-57, https://doi.org/10.1080/00940771.2009.11495587

Martin, N. K., Yin, Z., & Mayall, H. (2006). Classroom management training, teaching experience and gender: do these variables impact teachers' attitudes and beliefs toward classroom management style? Online Submission. https://files.eric.ed.gov/fulltext/ED494050.pdf.

Marzano, R. J., Marzano, J. S., & Pickering, D. (2003). *Classroom management that works: Research-based strategies for every teacher.* ASCD Publish.

McDonnough, J. T., & Matkins, J. J. (2010). The role of field experience in elementary preservice teachers' self-efficacy and ability to connect research to practice. *School Science and Mathematics, 110*(1), 13-23. https://doi.org/10.1111/j.1949-8594.2009.00003.x

McGarr, O. (2021). The use of virtual simulations in teacher education to develop pre-service teachers' behavior and classroom management skills: implications for reflective practice. *Journal of Education for Teaching, 47*(2), 274-286. https://doi.org/10.1080/02607476.2020.1733398.

Morris-Rothschild, B. K., & Brassard, M. R. (2006). Teachers' conflict management styles: The role of attachment styles and classroom management effectiveness. *Journal of school psychology*, *44*(2), 105-121. https://doi.org/10.1016/j.jsp.2006.01.004.

Nacar, F. S., & Tümkaya, S. (2011). Sınıf öğretmenlerinin iletişim ve kişilerarası problem çözme becerilerinin incelenmesi [Investigation of classroom teachers' communication and interpersonal problem-solving skills.]. *İlköğretim Online*, *10*(2), 493-511.

Oktan, D., & Çağanağa, Ç. K. (2015). The impact of teachers' gender differences on classroom management. *International Online Journal of Education and Teaching (IOJET), 2*(4), 239-247. http://iojet.org/index.php/IOJET/article/view/106/117.

Önder, E., & Önder Öz, Y. (2018). Variables that predict classroom management anxiety and classroom management anxieties level of pre-service teachers. *Pegem Journal of Education and Instruction*, *8*(4), 645-664, http://dx.doi.org/10.14527/pegegog.2018.025.

Özen, H. & Yıldırım, R. (2020). Teacher perspectives on classroom management. *International Journal of Contemporary Educational Research, 7*(1), 99-113. https://doi.org/10.33200/ijcer.645818.

Özkul, R., & Dönmez, B. (2019). Classroom management concerns: A scale development study. *Inonu University Journal of the Faculty of Education*, *20*(3), 673 – 694. https://doi.org/10.17679/inuefd.521575

Özkul, R. (2021). *Analysis of the relationships between teachers' self-efficacy perception, classroom management anxiety and student control ideologies*. (Unpublished doctoral dissertation). İnönü University Institute of Educational Sciences, Malatya.

Öztürk, Y., & Gangal, M. (2016). Preschool teachers' beliefs about discipline, classroom management and undesirable behaviors. *Hacettepe University Faculty of Education Journal, 31*(3), 593-608. https://doi.org/10.16986/HUJE.2016015869.

Paliç, G., & Keleş, E. (2011). Teacher views on classroom management. *Educational Management in Theory and Practice, 2*(2), 199-220.

Redfield, C. (2022). *A Correlational study: Teachers' mindset of instructional coaches' roles and interpersonal/communication skills*. (Unpublished doctoral dissertation). Grand Canyon University.

Reupert, A., & Woodcock, S. (2010). Success and near misses: Pre-service teachers' use, confidence and success in various classroom management strategies. *Teaching and Teacher Education, 26*(6), 1261-1268. https://doi.org/10.1016/j.tate.2010.03.003.

Sadık, F., & Aslan, S. (2015). Examining the opinions of primary school classroom teachers regarding discipline problems. *Electronic Turkish Studies, 10*(3), 115-138. http://dx.doi.org/10.7827/TurkishStudies.7585.

Sanli, O. (2019). An evaluation of the teachers' classroom management problems. *Educational Research and Reviews, 14*(8), 282-292. https://doi.org/10.5897/ERR2019.3712.

Sarfo, F. K., Amankwah, F., Sam, F. K., & Konin, D. (2015). Teachers' self-efficacy beliefs: The relationship between gender and instructional strategies, classroom management and student engagement. *Ghana Journal of Development Studies, 12*(1-2), 19-32. https://doi.org/10.4314/gjds.v12i1-2.2

Serin, O. (2010). Sınıf öğretmenlerinin problem çözme becerilerinin çeşitli değişkenler açısından incelenmesi [The examination of primary school teachers' problem solving skills in terms of various variables]. *Education and Science, 31*(142), 80-88.

Sevce, S. S. (2017). *İlkokullarda görev yapan sınıf öğretmenlerinin sınıf yönetimi becerilerinin incelenmesi* [Investigation of classroom management skills of classroom teachers working in primary schools]. (Unpublished master's thesis). Çukurova University.

Sciuchetti, M. B., & Yssel, N. (2019). The development of preservice teachers' self-efficacy for classroom and behaviour management across multiple field experiences. *Australian Journal of Teacher Education (Online), 44*(6), 19-34. https://search.informit.org/doi/10.3316/informit.506878421953401.

Suswandari, M., Siswandari, S., Sunardi, S., & Gunarhadi, G. (2020). Social skills for primary school students: Needs analysis to implement the scientific approach based curriculum. *Journal of Social Studies Education Research, 11*(1), 153-162.

Süral, S. (2013). *İlköğretimde görev yapan öğretmenlerin öğretme stillerinin sınıf yönetimi yaklaşımları ve öğretmenlik mesleğine yönelik tutumları arasındaki ilişki* [The relationship between primary school teachers' teaching styles, classroom management approaches and attitudes towards teaching profession]. (Unpublished doctoral dissertation). Adnan Menderes University Institute of Social Sciences. http://hdl.handle.net/11607/495.

Sydorenko, N., Denysenko, V., Grytsenko, I., Borysenko, N., & Terletska, L. (2023). Methodological foundations for the formation of professional qualities in primary school teachers. *Revista Eduweb*, *17*(2), 116-125. https://doi.org/10.46502/issn.1856-7576/2023.17.02.10

Şenyiğit, Ç., & Serin, O. (2022). The role of perceived ICT competencies on primary school pre-service teachers' integrated STEM teaching intentions. *Participatory Educational Research*, *9*(6), 221-247. https://doi.org/10.17275/per.22.137.9.6

Simsek, A. (2012). Research models. Simsek, A. (Ed.), *Research methods in social sciences* (1st Ed.). Anadolu University Publishing.

Şişman, M., & Acat, M. B. (2003). Öğretmenlik uygulaması çalışmalarının öğretmenlik mesleğinin algılanmasındaki etkisi [The effect of teaching practice studies on the perception of teaching profession]. *Fırat University Journal of Social Sciences*, *13*(2), 235–250.

Ünsal, S. (2021). Öğretmenlik mesleğinin tanımı, önemi ve öğretmenlerin değişen rolleri üzerine nitel betimsel bir araştırma [A qualitative descriptive research on the definition and importance of teaching profession and changing roles of teachers]. *Istanbul Commerce University Journal of Social Sciences*, *20*(42), 1481-1504. https://doi.org/10.46928/iticusbe.956111.

Tabachnick, B., & Fidell, L. (2013). *Using multivariate statistics* (6th Ed.). MA: Pearson.

Tasgin, A., & Tunc, Y. (2018). Effective participation and motivation: An investigation on secondary school students. *World journal of education*, *8*(1), 58-74. https://doi.org/10.5430/wje.v8n1p58

Turan, S. (2020). *Sınıf yönetiminin temelleri* [Fundamentals of classroom management]. Ankara: Pegem A Publishing, p.1-19.

Wang, M. T., Degol, J. L., Amemiya, J., Parr, A., & Guo, J. (2020). Classroom climate and children's academic and psychological wellbeing: A systematic review and meta-analysis. *Developmental Review*, *57*, https://doi.org/10.1016/j.dr.2020.100912.

Weinstein, C. S., Tomlinson-Clarke, S., & Curran, M. (2004). Toward a conception of culturally responsive classroom management. *Journal of teacher education*, *55*(1), 25-38. https://doi.org/10.1177/0022487103259812

Wolff, C. E., Jarodzka, H., & Boshuizen, H. P. (2021). Classroom management scripts: A theoretical model contrasting expert and novice teachers' knowledge and awareness of classroom events. *Educational Psychology Review*, *33*, 131-148. https://doi.org/10.1007/s10648-020-09542-0.

Vatansever Bayraktar, H., & Fırat, T. (2019). Sınıf öğretmenlerinin zaman yönetimi becerilerinin çeşitli değişkenlere göre incelenmesi [Investigation of classroom teachers' time management skills according to various variables]. *Eurasian Academy of Sciences Social Sciences Journal*, *26*(1), 72-101. http://doi.org/10.17740/eas.soc.2019.V26-05

Yalçın, B. Y. (2020). *Sınıf öğretmenlerinin benimsedikleri sınıf yönetimi stilleri ile olumlu sınıf iklimi oluşturma yeterlikleri arasındaki ilişki* [The relationship between classroom management styles adopted by classroom teachers and their competences to create a positive classroom climate]. (Unpublished master's thesis). İstanbul Sabahattin Zaim University.

Yıldız, A. (2019). *İşletme alanında nicel araştırma yöntemleri ve yayın etiği* [Quantitative research methods and publication ethics in business] (1st Ed). Gazi Bookstore.

Yıldız, D., Karaca, Ş., & Bakırcı, Ş. (2022). Öğretmenlerin iletişim becerileri üzerine bir inceleme [A study on teachers' communication skills]. *Artvin Coruh University International Journal of Social Sciences*, *8*(1), 1-17. https://doi.org/10.22466/acusbd.1062068

Yılmaz, Z. N., Aydın Şengül, Ö., & Bada, P. D. E. (2020). Hizmetiçi eğitimde sınıf yönetimi ve etkili öğretmen özelliklerine ilişkin öğretmen görüşleri. [Teachers' views on classroom management and effective teacher characteristics in in-service training]. *Sinop University Journal of Social Sciences*, 4(1), 213-234. https://doi.org/10.30561/sinopusd.711438.

Yurdakul, I., K. (2013). Evren ve örneklem [Population and sampling]. In Kurt, A. A. (Ed.), *Bilimsel araştırma yöntemleri* [Scientific research methods] (1st Ed., p. 75-92). Anadolu University Publications.

Zembat, R., & İlçi Küsmüş, G. (2020). Okul öncesi öğretmenlerinin sınıf yönetimi becerileri ile mesleki profesyonellikleri arasındaki ilişkinin incelenmesi [Investigating the relationship between preschool teachers' classroom management skills and their professionalism]. *Kastamonu Education Journal*, *28*(4), 1725-1739. https://doi.org/10.24106/kefdergi.3621.

Zou, D. (2020). Gamified flipped EFL classroom for primary education: Student and teacher perceptions. *Journal of Computers in Education*, *7*(2), 213-228. https://doi.org/10.1007/s40692-020-00153-w

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SOCIAL PERSPECTIVE ON EARLY CHILDHOOD EDUCATION: THE PROBLEM OF "CAREGIVER" ATTRIBUTION TO TEACHERS

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Abstract

Although the discussions on the care responsibilities of preschool teachers have been going on for years, it has flared up during the pandemic process. For that reason, the aim of the current study is set to examine in depth the views of preschool teachers and parents of preschool students on the caregiver role of preschool education. This research was designed as phenomenological research, one of the qualitative approaches. The purposeful sampling was used to determine the participants. In the research semi-structured interview form is used for gathering data and the data analyzed by content analysis. As a result, while parents emphasized the need for care for their children, preschool teachers also stated that they were aware of the group they worked with and served for a group in need of care. The point that creates problems about the care situation is that teachers are viewed as caregivers and approached to their work in this way. In the research, it was inferred by the statements of preschool teachers that this is not related to the concept of "caregiver", and that the "caregiver" job is a very difficult, self-sacrificing, and demanding profession, but it is not their only job.

Keywords: Preschool education, preschool teachers, childcare, teacher as a caregiver.

INTRODUCTION

By the spread of Covid-19 pandemic felt by all the assets all over the world has led to dramatic changes in almost all aspects of life. People's daily lives, habits, their common movements and even how they breathe have changed. One of the most striking examples of these changes was seen on attending school, along with going work as a part of daily routine. In some sectors, people started to work at home, or started rotational working hours or days, while some people in other sectors (logistic and security for example) continued to work as usual. On the side of education, many countries all over the world closed the schools and started online education. However, each country has followed different approaches; some fully closed the schools for a long time period (e.g., Austria, Chile, Turkey), some partially closed the schools (e.g., Czech Republic, Finland, Switzerland), some quickly respond the pandemics and students have turned back to schools in a relatively short time (e.g., Japan, New Zealand, Norway, France) (Zhongming, Linong, Xiaona, Wangqiang, & Wei, 2021).

Turkey, on the other hand, used hybrid approach. At the beginning, all the schools closed, however, on later phases schools were reopened. But the fast spread rate of the virus, let the ministry close the schools back with an exception, preschools. The minister of national education, while announcing the fully closing the schools second time on other grades and keeping the preschools open, explained that little children whose parents were to work need "care". This speech has got too much reaction from

teachers, especially from the preschool teachers, and teacher unions. They protested that perspective on news channels, and social media via various platforms (e.g., Twitter, Facebook, Ekşisözlük, etc.) by stating that the profession was interpreted or lowered to childcare. Also, even campaigns have been organized on the subject (https://www.change.org). As a result, preschools were closed as well.

However, his discourse has revealed a suppressed debate on a hidden function of education, at least perceived by others, "childcare" of working parents which has caused a "heartbreak" on preschool teachers. Hidden functions are the functions of education that are not formally stated. The defined functions of education, in other words expressed as explicit functions are individual functions, social functions, political functions and economic functions (Biesta, 2009; Doğan, 2014; Haimi Adnan & Smith, 2001; Hanushek & Wößmann, 2007; Hoşgörür & Taştan, 2007; Kızıloluk, 2013). The undefined, in other words, hidden functions of education are choosing partner, expanding one's circle and achieving status, the function of babysitting, the function of preventing unemployment, the function of preventing the economic exploitation of the child, and the purifier function (Doğan, 2014; Hoşgörür & Taştan, 2007; Kızıloluk, 2013). In the realization of these functions, each education level is particularly important.

Preschool teachers are expected to fulfill a wide range of duties, from basic care needs one of the hidden functions of education such as hygiene, well-being, meeting the needs and safety of students, to educational needs for socialization, development, and learning (Einarsdo´ Ttir, 2003). However, the process and the time the child spends at school can be perceived by some adults and children as care rather than education because of by the ignorance of socialization, development and learning processes. The statements of the participating children in the study of Einarsdottir (2014), such as "Just read letters and look after us", and the inclusion of caregiver as one of the teacher roles revealed at the end of the study, also provide important data regarding the meaning attributed to preschool teachers.

Although as the first level of all educational life, preschool education whose importance has been scientifically proven in terms of the expansion of children's worldview and world perception (Narimbaeva, 2020). Considering that the 0-6 age group is a critical period for children's cognitive, social-emotional, physical and language development, it is clear to what extent it is necessary to continue this process formally in preschool education institutions for children to spend the process with more positive experiences (Allen, Kelly, & National Research Council, 2015). Besides the children's developmental needs, preschool education supports mothers' professional development (Berlinski & Baliani, 2007) That is, another factor that makes the necessity of preschool education more striking is the increase in female employment (Cassirer & Addati, 2007; Eren, Teloğlu, & İlhan, 2017).

According to The World Bank's 2015 -Supply and Demand State of Childcare Services in Turkey Report labor engagement among women is low, and mothers often leave the workforce never to return. Forty-five per cent of currently unemployed mothers in the household survey sample stated that they had worked before but then decided to leave the workforce. In addition, most of these women (about 71%) specifically cited "childcare responsibilities" as their reason for leaving the workforce (TWB, 2015). Two years later the Education Reform Initiative [in Turkish: Eğitim Reformu Girişimi-ERG] published a report that was parallel to the report of The World Bank. In the Early Childhood Care and Participation in Preschool Education in Turkey Report of ERG it was stated that childcare in Turkey is perceived as a women's issue to a large extent (ERG, 2017).

That is, Turkey has a social structure that burden most of the responsibility of childcaring on mothers (Hüseyinli & Hüseyinli, 2016), so preschool institutions have particular importance for continuity of women in work life (Eroğlu & Şimşek, 2021; Eryılmaz, 2021). For working women, sending their preschool aged children to a kindergarten is accepted as a form of paid care (Kakıcı, Emeç, & Üçdoğruk, 2007). In this sense, the contribution of preschool education to the "childcare function", which is one of the undefined functions of education, becomes concrete, like other levels. Childcare

function includes the treat to the child like a parent, take him/her under the supervision of all stakeholders in the school and gives a controlled environment free from threats (Doğan, 2014; Hoşgörür & Taştan, 2007; Scottish Executive, 2007; Tezcan, 2017). As Oktay (1999) emphasized this function is based on social goals group -one of the three goal groups (social, educational, and developmental) defined by Mialaret (1977). It constitutes the equivalent of the item "taking care of the children of working women" (MEB, 2011).

While the “caregiver” perception has been a serious problem for preschool teachers from past to present, discussions have come to the fore again and more strongly during the Covid-19 pandemic by the disclosure of the minister of education in Turkey. In fact, in ideal conditions, parents and preschool teachers are on the same side and strive for similar purposes. Both want children in the 0-6 age group to develop in the best way in every aspect and strive to support it. For this reason, it is important in terms of mutual understanding and cooperation to put forward different perspectives on the subject with their reasons. So, in this study it is aimed to examine in depth the views of parents of preschool students on the caregiver role of preschool education by analyzing their views on reason for starting preschool education institution, the criteria considered when choosing a preschool institution, preschool education during the pandemic process, sending to preschool institution according to employment status, evaluation of the education received in the preschool education institution, expectations from preschool institutions. In this context, the problem of this study, which was carried out to determine the perception of parents and preschool teachers on the "childcare" function of preschool education, is stated as; "What are the views of preschool teachers and parents about the “childcare role” of preschool education?".

METHOD

Research Design

The aim of the study is to examine in depth the views of preschool teachers and parents of preschool students on the caregiver role of preschool education through their views on reason for starting preschool education institution, the criteria considered when choosing a preschool institution, preschool education during the pandemic process, sending to preschool institution according to employment status, evaluation of the education received in the preschool education institution, expectations from preschool institutions. for that reason, phenomenological research design was preferred since phenomenological investigations are the studies conducted to investigate perceptions or reactions of participants about a particular phenomenon (Fraenkle & Wallen, 2009). In phenomenological research, participants describe the phenomenon in line with their own experiences, and researchers try to reach the essence of the participants’ experiences and define them in this way (Creswell & Creswell, 2017). Data was gathered by interviews in which open-ended questions were asked to examine the participants' perceptions of preschool teaching.

Participants

The preschool teachers and parents of preschool students are the participants of this study. Participants were determined through maximum variation sampling, one of the purposeful sampling methods to diversify the views about the topic. In purposeful sampling, the participants are deliberately selected due to their qualities and experiences (Tongco, 2007) and the main purpose of maximum variation sampling is to look at a subject from a wide perspective, with all available angles and to reach a deeper and greater understanding (Etikan, Musa, & Alkassim, 2016). The researcher determines some criteria to differentiate the participants and selects the participants according to those criteria (Creswell, 2013). To ensure the confidentiality of the participants and protect their privacy, coding and numbering were done based on the identities of the parents or teachers.

Table 1. Descriptive statistics (Parents).

Interviewed Parent	Working Status	The Status of Sending to School in the Pandemic
Mother 1 (M1)	Working	Continued to send
Mother 2 (M2)	Working	Not sent
Mother 3 (M3)	Housewife	Continued to send
Mother 4 (M4)	Housewife	Not sent
Father 1 (F1)	Working mother	Continued to send
Father 2 (F2)	Working mother	Not sent
Father 3 (F3)	Housewife	Continued to send
Father 4 (F4)	Housewife	Not sent

As seen at Table 1, for parents of 0-6 age children, working or not working mother and sending or not sending during pandemic were chosen as criteria. For the interviews with mothers, mothers were chosen as working mother (who continues sending her child to school in the pandemic), working mother (not sending her child to school in the pandemic - receiving assistance), unemployed mother (who continues sending her child to school in the pandemic), unemployed mother (not sending her child to school in the pandemic). For the interviews with fathers, fathers were chosen as working wife (who continues sending her child to school in the pandemic), working wife (not sending her child to school in the pandemic - receiving assistance), unemployed wife (who continues sending her child to school in the pandemic), unemployed wife (not sending her child to school in the pandemic).

In this research the criteria for teachers were the type of the school they serve. The preschool teachers were chosen from both public and private schools. Details about teachers can be seen at Table 2.

Table 2. Descriptive statistics (Preschool Teachers).

Teacher	Institution	Experience (year)	Working Status
Teacher 1 (T1)	Public school and private sector	36	Retired
Teacher 2 (T2)	Private Sector (College)	3	Working
Teacher 3 (T3)	Independent	2	Working
Teacher 4 (T4)	Public school	5	Working
Teacher 5 (T5)	Private Sector (College)	10	Working
Teacher 6 (T6)	Public school	12	Working

Data Collection Tool and Process

Semi-structured interview form is used for gathering data in this study. The form is constructed by the researchers in line with previous literature. It has two parts: one for the descriptive data of the participants and the other part for the interview questions. During the construction process, five field experts (1 preschool teacher, 3 academics from preschool department and 1 academic from psychology department in faculty of education) were consulted and the general structure of the form was given accordingly their feedback. A pilot interview was held with 1 preschool teacher and 2 parents. After the transcription and analysis of the pilot interviews, the interview questions were reviewed and refined accordingly. After receiving ethics committee approval and permission, interviews were conducted with the participants. Before the interviews they were all informed about the purpose of study and their rights as a participant. Later, they were asked to sign informed consent forms to guarantee the volunteer participation in which protection of participants' personal data and rights is stated. In order to prevent loss of data and time, the interviews were recorded with a tape recorder with the permission of the participants, and then converted into a written text by the researchers.

Data Analysis

The data of this research was analyzed by content analysis. Content analysis is a powerful method that accepts the data as representations of expressions, images and texts, which are formed to be read, seen, or interpreted to understand what they really mean (Krippendorp, 2004). Content analysis can be used for any kind of written material, such as media products or interview transcriptions, by reducing and interrogating texts into summary form with categories and emergent themes (Cohen,

Manion, & Morrison, 2018). In this research the interviews were recorded for not to lose both time and information, with the consent of the participants. Later these records were transcribed by researchers. And then texts were examined for coding by both researchers separately. Then the codes, themes and the categories were formed.

Validity and Reliability

As an outcome goal of research (Creswell, 2013), validity is the level of describing the phenomenon, which is tried to be described, accurately (Bush, 2007). According to Lincoln and Guba (1985 as cited in Cohen, Manion, & Morrison, 2018) there are four criteria for validity in qualitative research. These are credibility (the truth value), transferability (generalizability), dependability (consistency) and confirmability (neutrality). In this research to realize credibility some methods were followed such as prolonged interaction with participants, depth-focused data collection, triangulation, and participant confirmation. Researchers tried to extend the interview process as much as possible to increase the interactions with participants to make participants feel more comfortable and share more and detailed information. The interview questions were prepared with the aim of getting in-depth information about the topic and depending on the answers of participants extra questions were asked during the interview. In order to ensure the variation both private and public-school teachers took place in the investigation. Also, parents have chosen according to work status and decisions about sending their children to school. Moreover, after the interviews, interview transcripts shared with the participants to provide conformation. For ensuring transferability, detailed description and purposeful sampling methods were used. The researchers tried to describe all the process in detail. Additionally, participants were chosen – in the line with to the aim of the research on purpose.

Dependability (consistency) is the qualitative form for reliability as quantitative concept (Cohen, Manion, & Morrison, 2018). In general, reliability is "the extent to which a test or procedure produces similar results under constant conditions on all occasions" (Bell, 2014). For qualitative research, reliability refers to the parallelism and stability of multiple coders responses to the data sets (Creswell, 2013). Codes and themes were created separately by two researchers, ratio of similitude was calculated with the reliability formula of Miles and Huberman (1994), and it has been determined that consensus was at the level of 96%. Also, direct quotations were included, and the consistency level was tried to be increased.

FINDINGS

The findings regarding the data obtained at the end of the interviews are presented below in two parts (interviews with parents – interviews with preschool teachers).

Findings on interviews with parents

The data gathered from the parents categorized as reasons for preschool education institution, the criteria considered when choosing a preschool institution, preschool education during the pandemic process, sending to preschool institution according to employment status, evaluation of the education received in the preschool education institution, expectations from preschool institutions.

The findings regarding the process of starting preschool education

The codes, which are formed according to the answers given by the parents to the questions asked to determine the factors that cause their children to start the preschool institution and to send them to the preschool institution, constitute the theme of reasons as seen at Table 3.

Table 3. Reasons for preschool education institution.

Theme	Code	f
Reasons	Socialization of the child	8
	Obligation – need for care	7
	The need for physical and cognitive development	6
	Getting the child used to school- learning the rules	3

Table 3 (Continued). Reasons for preschool education institution.

Theme	Code	f
Reasons	Incompetence of parents	3
	Developmental delay	2
	Preparing for primary school	2
	The need for quality time	1
	Sibling's going to school	1
	Total	33

When the Table 3 is examined, it is seen that the children were sent to preschool institutions due to socialization, obligation - need for care, physical and cognitive development needs, getting used to school - learning the rules, incompetence of parents, developmental delay, preparation for primary school, the need to spend quality time and his sibling going to school. Some parent statements about the interview on this theme are as follows;

> "…His speech was not at the level we expected, his general development was parallel to his month, but his language development was 4-5 months behind. We thought that he would be happier if his language development accelerated and he made friends, and he was with his peers all day. Afterwards, at the age of 5-6, there is a serious need for us to be working at the forefront, even though we are working at the forefront… We think that it is important for preparation for primary school at the age of 5-6. Things such as learning the rules in every sense, being a part of a social group, developing a sense of belonging, realizing oneself as an individual, fulfilling self-confidence, and forming a perspective on the teacher-student relationship are important. We think that it is necessary for all kinds of development, both physically and psychologically, and it is important in terms of gaining behaviour… (F2)
>
> "What can I say… hımm about the development of the child, in the same society again… In other words, in order to ensure that he gets used to such a friend environment instead of being alone at home, that is, to enable him to socialize in order to become a member of a society in preschool education.…" (M2)
>
> "X spoke late, we had very few words in our speech, he had very little communication with people like this, so we decided that it was right for X to start kindergarten in order to speed up this situation a little more, and we made the right decision. In a short period of maybe 5-6 months, his vocabulary expanded, and his speech increased. His relations with his friends also increased, we started because of the direct talk thing.…" (M1)
>
> "My daughter was a very curious child anyway and she was so active, when her mother started to say that I am not enough anymore, I can't keep up, we said it's best to go, at least half a day, half a day in the first semester, then she was crying while she was taking it, no one is going because my friends are left, the second semester gone all day. We sent it to help her academic development and socialization at work and to pass the time to the fullest." (F3)
>
> "…He was also shy, when we got together with friends, the children of all of them somehow mingled with us, ours would hang out separately from them, we would go to the playground, he would run away from the children again, he never wanted to share his toys. We thought that he needs to learn these and get used to school…" (F4)
>
> "Our caregiver left, so we had to give it. Otherwise, I didn't want to give it, frankly, if Aunt Ayşe had not left us, I had no intention of sending it in any way…" (M2)
>
> "…When he had a sister, I couldn't cope with both. The girl was crying a lot - she was colic, and the boy was also used to the attention, when the attention suddenly split … I couldn't cope with them, we said, "it will be better sent him and let his energy go." I was already starting to feel inadequate before the birth; it became an excuse also…" (M3)
>
> "Obligation, because we both have to work..." (F1)
>
> "…There was no one in the family to take care of it at that time. …" (F2)
> "His brother was going to school. Then I went back to work completely, we said, let's give it to him. The reason Y started was because of my transition to working full time. …" (M1)

"…but the child took responsibility, for example, she learned to follow the rules a little more, if I think according to my child's level, I can say that she learned to obey the rules and become a member of the society…" (M2)

"…to get used to school …" (M1)

"…When her sister was not at home, she was always waiting for attention from me, waiting for me to play with her and spend time with her. I was playing, but he didn't like it most of the time, I can't give the reactions he expects from his peers or at least from someone close to him, I'm always impatient, and I'm a little tired…" (M4)

"…It's classic now, nowadays every child goes before the 1st grade, but most of them start sending their children one year ago, I think my wife wanted to follow the fashion …" (F4)

The findings regarding the criteria taken into consideration when choosing the preschool institution

The codes formed according to the answers given by the parents to the questions asked to determine the criteria they consider when choosing the preschool institution to which they send their children constitute the criteria theme (Table 4).

Table 4. Criteria considered for preschool institution selection.

Theme	Code	f
Criteria	Teacher	10
	Physical structure	5
	Child's happiness	4
	Owner(s) of the institution	3
	Distance	3
	Positive reference	2
	Relationships with friends	1
	Total	28

When the Table 4 is examined, it is seen that parents choose the preschool institution to which they will send their children based on the teacher, the physical structure of the institution, the happiness of the child, the relations with the owner of the institution, the distance, positive references and the relations of the child with the friends in the institution. Some parent statements about the interview on this theme are as follows;

"I think the most important criterion for me is the harmony with the teacher and his friends..." (M2)

"Who are the teachers, what is the teacher's training – we searched one by one..." (F2)

"…Distance was important, we paid attention to things such as the cleanliness of the institution, the education level of the teachers, who the school owners are, the physical capabilities of the building, the garden, whether there is protection on the stairs.…" (F4)

"…We searched the teacher. We searched the school owners. We looked at the cleanliness and examined the menus. We talked to a couple of friends who sent their children that school…" (F3)

"…While choosing the institution, I also took the teachers as a base, I paid attention to their meticulousness, of course, that part is a bit of luck, you don't know what's what when choosing a teacher, you step into something new…" (M1)

"The character and discipline of the teacher…" (M2)

"And the staff… We searched for the teacher, who will work that year. …" (F1)

"…First, it was very important that the physical structure of the building was suitable for children, measures to ensure its safety- is this a building built in that structure? …" (F2)

"…Let there be a place where children can play comfortably, not an environment like this from the building to the apartment…" (M2)

"…first, we looked at building, is it physically good, is it fit …" (M4)

"My initial criterion was that the child be happy… he will leave me and spend almost the whole day there. He should not spend his time there worried, or I don't know, tense or sad, he should feel happy to be there while doing something.…" (M1)

"…secondly, an environment where my child could be peaceful, what else was there…" (M2)

"…will our child be happy here? That was all we wanted, in the first place, he will stay away from us, and will he be happy almost all day in this institution? …" (F2)

"We had friendly relations with the school administrators; her sister also was here, I was happy…" (F1)

"…and the distance, of course, I must take her away, at least taking her because my wife can't always go out. …" (M4)

"…we had acquaintances; they were pleased… a little bit on the recommendation" (M3)

The findings regarding the view on preschool education during the pandemic process

The findings regarding the answers given to the questions on the actions chosen by the parents who continued to send to the institution and chose not to send it during the period when the preschool education institutions were open during the pandemic process are given below with Table 5.

Table 5. Opinions on preschool education during the pandemic process.

Category	Theme	Code	f
The status of sending or not sending to school in the pandemic	No		4
	Yes		4
Opinions on the process of not sending to school in the pandemic	Positive aspect	Health	4
	Problems	Layout change – rule bending	5
		Failure to meet developmental needs (skills–academic)	5
		Inability to meet psychological needs	5
		TV-tablet habit	4
		Failure to meet care needs	2
Total			28

Parents who did not send them to an educational institution during the pandemic were asked what the positive contribution of this could be for the child, they shared the opinion that there is no positive aspect other than protecting their children in terms of health during the epidemic process. During the pandemic process, the parents of the children who did not attend the preschool institution were asked about the problems caused by not sending them, and the sending parents were asked about the reasons that made it necessary to send them to the education institution during the pandemic, and the answers obtained were arranged and given in the Table 5. According to the Table 5, the parents shared answers to the themes of change in order – breaking the rules, not meeting the developmental needs (skills – academics), not meeting the psychological needs, tv-tablet habit, not meeting the work-related care needs. Some parent statements about the interview on this theme are as follows;

"We think it's more health-protected, at least as we've reduced the risk, but there's not much positive about it.…" (F2)

"There was no positive aspect, only protection in terms of health …" (M2)

"…In terms of health, of course, it seems to be better, we are reducing the risk. It's like there's no other…" (M4)

"…As I said, I think the biggest contribution in terms of health is getting sick less. Although friends say that you will experience the same thing when you start the 1st grade, it is logical, but still, we would not be comfortable with such a virus when there was such a virus... other than that... I couldn't find it.…" (F4)

"Grandparents show a little more tolerance, they can't help it, it can be a bit of a stretch in terms of rules. Child's behaviour changes …" (F2)

"It's a difficult process for us anyway and tearing children out of the order they're used to can cause serious changes in their behaviour, which happened when they didn't go for the first time – when the first pandemic started. Later, in that process, he missed his friends, he missed his teacher, and he wanted it to be as he was used to. But as we left space, it started to hang on TV and tablet.…" (F3)

"It created very serious problems because at least I will contradict myself a little here again, but before I start school, at least a little bit academically, at least hand dexterity, line work etc. or some mental activities are okay for me, sociability is at the forefront, but of course academic success is also a criterion. I wish my child had taken some studies on this before starting the first year of preschool, but now I think that my child has regressed a lot because he did not take those studies…" (M2)

"Even though we don't have academic concerns, there are things s/he forgot, you can be noticed between speaking …" (F2)

"My wife continues to work, the school was already taking the necessary precautions, I don't know how other institutions are, but I think it is necessary to educate these children under all circumstances…" (F1)

"It is psychologically necessary, they miss their friends, they miss that environment very much, it is very important for their development. By staying at home, how much I can improve her, how much can I train her …" (M1)

"She is bored and wants to play games with us all the time… Of course, we can't be like her friends…" (F2)

"…it would be much more difficult for me to linger at home; his sister was also very active; it was necessary for our mood …" (M3)

"She misses her friends a lot, and her teacher says things like, if we were always at school, we would do this, if we were at school, we would do this, let's do this, let's play like this..." (M4)

"He wants to spend more time on TV and tablet, and we can prevent it up to a point, sometimes there is a serious timeout…" (F2)

"…Since you can't live every moment to the fullest at home like at school, we turn on the TV and watch it when we get stuck, it's not a lie, the day is more unproductive. …" (M4)

"…the phone does not fall out of hand…" (F4)

The findings regarding the idea of sending to the preschool institution according to the working status

Parents with children who received pre-school education before the pandemic but did or did not attend the institution during the pandemic were asked for their opinions on whether the child should be sent to preschool education, depending on whether the child's mother works or not. The answers were analysed.

Table 6. Sending to preschool institution according to employment status.

Theme	Code	f
Preference	The father would still send it if his wife hadn't worked (apart from the pandemic)	2
	If the mother hadn't worked (apart from the pandemic) she would have sent it anyway	2
	If the mother didn't work, she would send it in the pandemic	1
	If the mother had worked, she still wouldn't have sent it during the pandemic.	1
	The father still wouldn't have sent them in the pandemic if his wife was working.	1
	Total	7

According to the Table 6, all the mothers and fathers expressed their opinion that even if the mother is not working, their child should receive preschool education, in cases other than the pandemic. Some parent statements about the interview on this theme are as follows;

"I would definitely send her to preschool, but there is no need before age 5…" (F1)

"He used to go to preschool institution for 5-6 years old, but he started kindergarten early, unfortunately, I'm sure we would feel better if he could finish at least 4 years old" (F2)

"I would send, I would send, yes I would definitely send him for his development, for his happiness and for preparation for a primary school" (M1)

"I would definitely send after the age of 4, even if I don't work, in my mind, after the age of 4, the child should receive preschool education" (M2)

"…I wouldn't have sent him. In terms of his health, I think it is appropriate not to send him to protect him. If I was working, we would have called grandparents, maybe his aunt, I don't know, but I wouldn't have sent him. As I said, even the conditions were normal they are usually very sick at school anyway, and I think that the stress of this illness is not worth it…" (M4)

"Hmmm… I think we would have called her grandmother, and we wouldn't have sent her... We had a lot of health problems when she first started - they said it's at least a year or two for children - she already has allergies, we used too many antibiotics, we thought it was very possible that she would get sick, actually, we were a little scared for her. Somehow, her mother is at home, so we do not think about who will take care of her…" (F4)

The findings regarding the idea for the evaluation of preschool education

The findings regarding the parents' views on the acquisitions their children have gained in the preschool education process are given below at Table 7.

Table 7. Opinions on the education received in the preschool education institution.

Category	Theme	Code	f
Contribution of education to children	Socially	Behaviour acquisition	8
		Rules	5
	Academically	Foreign language	4
		Maths	2
		Letters and pronunciation	2
Parent's assessment of the process	Satisfied		8
	Sufficient		8
Total			37

According to the Table 7, parents stated that their children have both social and academic achievements and that they find these achievements sufficient and are satisfied. Some parent statements about the interview on this theme are as follows;

"... I was pleased because I think this is an educational institution that meets what I want, our teacher was very sweet once, ours is a difficult child, yet she has been nice to him and I think she has changed his behaviour, frankly" (M2)

"At an early age, children grasp everything quickly. The first institution we sent in added a lot in terms of behaviour. He learned the rules. Even though we told him what to do at home, it wasn't as effective as in daycare. Here he is, for example, sneezing, where he immediately placed his arm and mouth easier... He learned general things like that more quickly there. When he moved to the other school, they went more academically. We obviously didn't expect academics, but it helped a lot. English, mathematics, sound studies... he will be 1st grade next year and we feel like he's ready. To act as a community, to manage friend relationships, to use common toilets, to eat in the dining hall... They learned things like that..." (F2)

"... I think he has learned and adopted the code of conduct very well, he is already showing himself when he enters the community ... another point is the foreign language, he knows a lot of English words, for example..." (F3)

"…He learned the rules, he was calmer and kinder when he was talking to us, I don't know, asking for something, and he is thanking us more than before school.…" (M4)

"… He had friends, and he learned to share a little... When we got into the crowded environment, we didn't have any problems, he could play games or get involved in the game.…" (F4)

"…His behaviour improved quite a bit, even though it took a while, he learned, he was arranged to eat, his sleep settled, he learned to get by with his friends, he started to follow the rules – even at home - for us.…" (M3)

"He learned songs, he told us what he did at school, the way he expressed himself and his friends changed for the better... He started learning English, then chess... contributed a lot" (F4)

"They support a child up to a foreign language, they support it up to English, so what more can happen?…" (F1)

"…Here are the colours, the numbers, the mathematical intelligence, and children gradually establish their own concepts after a pattern…" (M1)

"…I think it's enough from the beginning…" (M1)

The findings on parents' views on their expectations from the preschool institution

The views of the parents who send their children to the preschool education institution regarding their expectations from the institution are given in the Table 8.

Table 8. Expectations from preschool institutions.

Theme	Code	f
Expectations	The child's acquisition of social skills	8
	The child's acquisition of physical skills	7
	Meeting the psychological needs of the child	6
	The child's acquisition of cognitive/academic skills	5
	Total	26

When the Table 8 is examined, it is seen that parents have expectations from the preschool institution for the child to acquire social skills, acquire physical skills, meet the psychological needs of the child, and acquire cognitive / academic skills of the child. Some parent statements about the interview on this theme are as follows;

"We expect him to be qualified to manage himself as an individual, to gain the skills to help him go through that process without difficulty when he starts primary school.…" (F2)

"…to learn the rules, act according to the rules, discover ways to control energy without harming, know oneself, learn to share…" (M3)

"…to give the child positive energy and confidence, prevent situations that will damage their self-esteem at school and teach them how to protect themselves and protect them in this direction…" (M3)

"We thought that, if the conditions were not like this, he would be ready for primary school and school life in general. They were preparing to read and write.…" (F4)

"Let him learn to act harmoniously in the social environment, learn that there are rules everywhere, that it is necessary to act accordingly to them...." (M4)

"Be ready for primary school both psychologically, academically, and physically. Let him get used to school…" (M4)

"…I wish the psychomotor skills were a little more developed, especially in terms of hand coordination because my child's hand coordination is poor …" (M2)

"The important thing is that the child is happy now and then.…" (F2)

"…feel at peace there, feel safe…" (M1)

"Critical thinking skills, problem solving skills are very important, I don't know, getting coding training and making them produce things, robotic coding etc. They were important. I would like him to progress a little more in English, albeit partially." (M2)

Findings on interviews with teachers

Findings of interviews with teachers are categorized as reasons to choose the profession, knowledge of the job description and requirements when choosing the profession, different aspects of preschool

from other branches, value attributed to the profession by others, different aspects of preschool from other branches in terms of the value given, care and distraction attribution to preschool education, reasons parents send their children to preschool institutions, face-to-face education during the pandemic, continuation of the activities of private preschool institutions during the pandemic process.

The findings on the reasons preschool teachers prefer the profession

Preschool teachers were asked why they chose their professions, and their answers were presented in Table 9.

Table 9. Reasons to choose the profession.

Category	Theme	Code	f
Reasons	Personal reasons	Love children	3
		Desire to be a teacher	2
		University score	2
	Economic reasons	Easy to be nominated	2
		Easy to find a job	1
	Social reasons	Environmental conditions	2
	Total		12

When the answers of preschool teachers to questions about choosing their professions are examined, as they are given in Table 9, it is seen that personal, economic, and social reasons are effective in their choices. Some teacher statements regarding the interview for this theme are as follows;

> "Firstly, I love children very much and the best profession I could choose in the circumstances of my family and environment at that time was teaching as a woman, so I chose preschool teaching... The reason it was preschool was because I got along better with little kids, I got down to the level of the kids better, and I had good communication with the kids around me, so I chose preschool." (T1)

> "I thought it was a profession that suited my own life energy. I love kids, I enjoy spending time with them, and I thought I could keep it a profession.…" (T3)

> "I love kids, I get along so well, it's always been like this with the little ones, especially the 4-5-year-olds.…" (T6)

> "…The preschool nomination was even better then... I'm convinced there's a job I can do without worrying about work.…" (T6)

> "I was already at Anatolian teacher high school, and somehow the fact that there were plus points affected my score, so I thought I could choose this profession...." (T3)

> "…Of course, one thing the system brings is that when I was in high school, I wanted to teach English, but I went down this path by choosing to study preschool in a better place than study English in a worse place, but I wanted to teach anyway.…" (T2)

> "…I was thinking of teaching, and when his nomination was very easy, I thought I'd write preschool teaching.…" (T4)

> "…I didn't get a chance to do anything in my field, so I finished preschool. And then I started... I'd say job opportunities…" (T5)

> "…Teaching is seen as a good profession for women, and that's how my family always directed me, and they said you love it.…" (T6)

The findings for preschool teachers to be informed about the job description and requirements when choosing the profession

Table 10 provides the answers of teachers to the research question about the level of knowledge of preschool teachers regarding the job description and requirements of preschool teaching when choosing their professions.

Table 10. Knowledge of the details of the profession.

Knowledge	f
No	6
Yes	0
Total	6

According to Table 10, any of the teachers had enough information about the job description of their profession and requirements of being a preschool teacher. Some teacher statements regarding the interview for this theme are as follows;

> "There wasn't, just because I preferred it over the other branches because I loved children…" (T1)
>
> "…I didn't really know, and I didn't even think I'd like it so quickly, but I think it was more enjoyable for me after I got involved, but of course I didn't know what to do, how the process would go." (T2)
>
> "… Here's what I knew about the job description and requirements: I had observations, I didn't have a definitive information about it, but I had my own conclusions.…" (T3)
>
> "… No, not knowing anything.…" (T4)
>
> "…Didn't…" (T5)
>
> "I didn't have any details, no.…" (T6)

The findings on teacher opinions on different aspects of preschool from other branches

Table 11 provides the answers of the preschool about the differences of their branches from other branches.

Table 11. Different aspects of preschool from other branches.

Category	Code	f
Different aspects	Importance for the child	8
	Connection with the child	6
	Care	4
	Obligation to teach basic behaviours	4
	Responsibility	4
	Interaction	3
	Difficulty noticing academic achievements	3
	Together all day	3
	Break	2
	Total	37

As seen at Table 11, preschool teachers think their branches has many different aspects when compared to other branches. They stated that they are different from other branches in terms of importance for the child, connection with the child, need of care, obligation to teach basic behaviours, responsibility level, interaction type, difficulty noticing academic achievements, being together all day and having no break. Some teacher statements regarding the interview for this theme are as follows;

> "Children learn everything in preschool education institution. socializing with friends, cleaning rules... You know, there are some things they learn at home, but usually mothers do not put up with their children if they start at a younger age. They do everything for their children. Toilet training is generally a little more meticulous, especially about hygiene and they do what needs to be done for the child. Most of the children who come to school do not have toilet training. Here, it is the duty of the teacher to give toilet training. (T1)
>
> "You're their first teacher.…" (T2)
>
> "It's very affecting for them to love school for the future, and it's partly your responsibility to make them love the teacher and the school. If we continue our mission with the awareness of this, we will have the opportunity to educate more successful students and better students who love their schools.…" (T1)

"…We live with the child every moment at school, we don't have break, we model for children at any time because it's the first time they interact so much with individuals other than parents. They learn with us the basic behaviours and rules of being an individual in society…" (T6)

"Some outputs and some behavioural changes can be noticed more quickly in us, but it takes time to see what we add to them academically. Let him learn, take the exam, and get high grades. Aaaah okay, it's not ours that learned the case. That's why I think parents question the quality and competence of the preschool teachers more. Since the importance of pre-school was only recently understood, it was looked at whether it would happen or not. But the child must learn mathematics, learn English, these were considered success criteria. I think people who were not aware of the contribution of preschool to the future are still not fully aware of it.…" (T5)

"…We may not see anything academic clearly in the child, but we give and receive a lot of spiritual things, and I think that's the biggest difference from the child.…" (T4)

"…In fact, we make a very serious contribution academically, but it's harder to notice by the parent, education outweighs teaching, and I think we're laying the groundwork for the future, getting the school used to it, loving the school, teaching the basics.…" (T6)

"…you start in the class in the morning, you are with the children until the evening without any break, without lunch break… (T1)

"…When we look at other branches, they don't cover the whole day, they're together for a certain period of time, but we have to be in the classroom effectively, even in those branch classes." (T3)

"I think we're with the children who need care, and not just the education part, we're caring for the children, we're showing compassion, we're giving more love, and we need to make it feel more serious and more intense, I think we're building a more serious and intense connections with children that I don't think it can be restricted just on education.…" (T2)

"… Apart from the teaching role, we also have a care role, for example, a math teacher doesn't have to deal with a child's need to use the toilet or nutrition, but as a kindergarten teacher, I think that as a kindergarten teacher, we have a separate care role and a teaching role where you can measure that child's temperature at work when they are sick when they need to use the toilet and need food.…" (T3)

"Besides, we're responsible for everything for the kids, we take care of everything, from eating to the toilet, we're changing their clothes. We're streamlining friend relationships; they learn a lot of what they need to know to be self-sufficient as an individual.…" (T5)

"…They go in and out of class, the classroom teachers are a little closer to us again, but I think the responsibility of the other branches is very little, not to say academically, he learned it, he didn't learn it, although it's up to the teacher's conscience.…" (T6)

"But I work with a group that needs to be cared. I wipe snot, I clean it if it underneath, I clean it if it vomits, I do everything in the name of care and I do... yes, I may not be a babysitter, but I'm with a group that needs care, so I'm taking care of it.…" (T2)

"…we have much, much more responsibility than other teachers" (T1)

"It is very easy to make children happy, you get immediate feedback on what you give, or you can see what you give in a very short time." (T1)

"…We're building such a more intense connection with the kids; I don't think it can be restricted to just education." (T2)

"…yes, there's more to it than that, there's no way I can forget after I'm out of class, so I go on with my life with the kids." (T2)

"…The children are cut off from the mother and come straight away, so they put you in their mother's shoes somewhere, and they connect with love." (T1)

The findings on the views of preschool teachers regarding the value attributed to the profession by others

The views of preschool teachers regarding the value attributed to the profession by others are given in the Table 12.

Table 12. Value attributed to the profession by others.

Theme	Code	f
No	Prioritizing care rather than academic processes	3
	Ignorance of the importance	3
Now yes		2
Varies by institution		1
Total		9

As given at Table 12, preschool teachers have different answer for the value attributed to their profession by others. Some of the teachers believe that their profession does not value enough because of prioritizing care rather than academic processes and ignorance of the importance of preschool education. Some teacher statements regarding the interview for this theme are as follows;

> "I don't think our profession gets the value it deserves. After all, we are at a point where the child's life is shaped, but in many ways, it is more important for parents whether we can meet the biological needs of the child than the education we provide…" (T3)

> "…I mean, I certainly don't. Especially during this pandemic period, the issue of caregivers came up and there were huge reactions... So now I'm a caregiver, I can't say anything, but I don't think that should be our only concern and our only mission, in the eyes of people or at work compared to other branches. "Yes, yours, hımm..." we are troubled to hear such sentences begin like that... But the rest of the time, people don't value our teaching very much anyway.…" (T4)

> "I don't think so... I don't think teaching gets the credit it deserves, but we're being devalued altering. Anyway, the minister said that "…for the working mothers' children..." he put us in the position of caregiver directly... we're so much more than that…" (T5)

> "No, especially superficial parents who don't know enough about the subject, and even teachers in other branches, despise our work, some parents just send their children because they have nowhere to leave, and also, they make you feel that way, with their attitude, with their behaviour.…" (T6)

> "…I was a paid teacher both in a private institution and in a state-affiliated institution. I worked in public schools – independent kindergarten. I think there's more value there. So yes, I had a lot of parents, and my colleagues at the institution I was in were really valued. I could really feel that respect, that love. I've always been able to get feedback that what I've done on your children is so precious. And I was with the parents who made me feel that they trusted me so much that they felt they had enough. Yes, I think they do, so maybe we can't see the values of people who are too irrelevant. I mean, the look of someone who's never been to any preschool institution could be "preschool teacher." But I think the people who are in this and sent their know-it-all child to the preschool institution, or our colleagues, the people we work with, I think they really appreciate it.…" (T2)

> "… When I first started in the profession, it didn't get the credit it deserved, and frankly, parents understood the importance of that a little bit more now. Our own colleagues didn't understand the importance of preschool at first, our colleagues in primary school, so what we did was very different to them... They probably saw their preschool teachers as babysitters at work because they were probably too young to be in preschool, or because, as I said, they only saw it as a playground.…" (T1)

The findings on the opinions of preschool teachers about the different aspects of preschool from other branches in terms of the value given to preschool

Preschool teachers were asked about the different aspects of preschool from other branches in terms of the value given to preschool, and answer are given in the Table 13.

Table 13. Different aspects of preschool from other branches in terms of the value given.

Theme	Code	f
Different aspects	The connection and value from being the first teacher	3
	Inability to get financial reward	3
	Total	6

As can be seen at Table 13, pre-school teachers mentioned both positive and negative aspects different from other branches in terms of value of their branche. The connection and value from being the first teacher was the positive aspect but inability to get financial reward was the negative one. Some teacher statements regarding the interview for this theme are as follows;

> "…Since I work one-on-one, I can make a distinction, for example, there is a big difference between taking private lessons in the field of mathematics and taking private lessons in the field of pre-school. Because they do not have an academic concern, it may not be necessary for the parents to take private lessons in the pre-school area. it is perceived to use more time. but when we look at mathematics or science, the parent has an academic concern over that child and may give him more priority, can separate a larger part financially. There are such differences…" (T3)

> "I said, for example, we don't have break, we work nonstop, so there must be an awareness of that. Other teachers have branch courses in elementary and high school teachers. They have time to rest. In public schools, they can also support the teacher with small breaks so that he can breathe and take a pass." (T1)

> "I'm not that mercenary, don't get me wrong, but I think we've been financially beaten for years. When it's considered working hours, I mean, again, I don't value money, but I don't think its contribution in terms of motivation should be ignored.…" (T6)

> "So, for one thing, we're actually spending more time with the most precious being for people, what they care about most. And we're their first teachers. That's why I see their view of us is much more positive. We share a lot .... But I think we're valued both in terms of being the first teacher and in terms of building very long-term connections." (T2)

> "I think there are differences in the way students view us. In other words, I think the value given to us by the student is much higher. They show their love so beautifully in their pure form that I do not believe they have established the same connection, they have established with us, with other branch teachers.…" (T5)

> "Well, there is that some parents cherish us, and so are the classroom teachers, but when we become the first teacher, some parents look us in the eye, you feel like that, you feel that you are very important to them, there are people who frequently express this in bilateral meetings... students who come out after years they don't forget us easily…" (T6)

The findings on the views of preschool teachers on the responsibility of care and distraction attributed to preschool education by others

The views of preschool teachers on the responsibility of care and distraction attributed to preschool education by others are given in the Table14.

Table 14. Opinions of preschool teachers about care and distraction attribution to preschool education.

Theme	Code	f
No, because	Belief in the importance and sanctity of the profession, respect for the profession	6
	Planned processes	4
	Awareness of the importance of the game	2
Yes, because	Expectations for only basic needs and behaviours	1
	Parent's attitude	1
Total		14

When the answers of the preschool teachers examined for the question whether they feel like they are at school just to care or distracting children, as it can be seen at Table 14, the main reasons of such a

feeling are parent's attitude and expectations for only basic needs and behaviours. Some teacher statements regarding the interview for this theme are as follows;

> "It's not because of the communication between me and the child... For example, when mothers pick up the child and ask me what you learned today other than whether the child was eating that day, I want to see the bulletin, what activities were held, parents make me very happy. For example, I'm not just obligated to stall the child. And I'm also a preschool teacher. And someone's asking me if my job has been done, and maybe that's not the right statement, but I'm looking at a parent who's questioning why the kid exists in that class. He wants to know how it went today. Then yes, I feel like I've done my job. But of course, that's just how I feel about the parent who asks if my kid fought or cried or if everything went well. it is entirely due to the gap between the expectation of the parents and the expectation of the teacher... i.e., the parent's approach…" (T4)

> "It's not happening, it's not happening. Maybe it's because I believe in how sacred my mission is as soon as I'm inaugurated. That's because I love kids so much. I've always tried to give them the best. So, I didn't see jumping with kids as a distraction even when I was playing with them during free playtime or playing in the garden. because the best education is the education given by play. Maybe I never underestimated my profession because I was aware of it or believed in it. I didn't despise the child because it's my duty. And as I just said, maybe more important education than teaching is giving us good behaviours for children's behaviour... the behaviours we direct, that is, education is much more important to us" (T1)

> "Let's just say parents didn't make me feel that way, but I didn't make myself feel that way out of respect for my profession. I've never felt like I've been stalling because I've been trying to spend every moment in time, full of them, and somehow effectively towards the kids. Maybe it was partly about my own schedule, and I didn't feel like I was stalling because it was so full, there wasn't any free time." (T3)

> "It doesn't work, although some parents just leave it for care and make it feel like it, I don't care about them and their attitude. I'm trying to get the kid to give me the highest level I can. They learn through the game, which is a method... If anyone doesn't know, that's his problem... We do everything in class, we go through a lot, we educate, we teach, we do it anyway, it doesn't matter to me that others don't realize it, I know what I'm doing, and I make a difference in the lives of these kids after me. That feeling is enough for me…" (T6)

> "… I mean, I don't really think so. But there are people who think that way, who pretend to be caregivers. Or there is also a reaction to the immediate explanation when this statement is made in the first place, there are also articles written under the headings we are teachers, not caregivers... But I work with a group that needs to be looked after. I wipe snot, clean it if it underneath, clean it if it pukes, do everything in the name of care. I'll do it. I mean, because there are teachers who say I wouldn't do that, and I resent that, yes, unfortunately. Because I could be working alone in the East. It's never possible to ask someone to (I mean a class aunt) come and clean it, and it doesn't have to be. Because when we start our careers, there's nothing like that. There's no sign that you'll have an auxiliary staff to work in a kindergarten. It doesn't have to be, but then what am I going to do is keep a kid his wet pants waiting for hours... I can't... I think it's a little bit about the value given to titles in our country. This time we put the babysitter or caregiver down. I mean, that's not possible. For a mother, the caregiver is one of the most precious people she entrusts her child to. It's impossible to underestimate it. I think we're too hung up on these names for titles. I never hang out for myself... I mean, yes, I may not be a babysitter, but I'm with a group that needs care, so I'm taking care of it.…" (T2)

> "No, I don't feel it. Actually, we already have a plan. We have a process; we have routines to do. I don't feel it when I'm with them. I mean, it doesn't even make you feel like the youngest age group kid because they're cannier in that class environment, and they have a certain system. I don't even remember picking it up behind the kid's back. We'd complete what our event was. Then he knew we had to do what we were all doing with our child. That's why I don't think kids make me feel that way. I never felt like I was their babysitter or their staller." (T2)

> "It's the kind of thing that looks at us, but I don't think it is – I don't feel it. We do a lot of things. It's not stalling, it's making sure they have quality time. We spend every moment full. That's where some mothers say I can't get enough of my child. And we're oversized, we teach them a lot of things, we

educate them, they make a habit of a lot of things that parents can't do. I mean, we don't do anything that lightly. I don't care who claims otherwise, to be honest, I give it to their ignorance.…" (T5)

The findings on preschool teachers' views on why parents send their children to preschool institutions

The views of preschool teachers about the reasons why parents send their children to preschool institutions are given in the Table 15.

Table 15. Reasons parents send their children to preschool institutions.

Theme	Code	f
Reasons	Childcare needs of working mothers	6
	Socialization of the child	5
	Parents' feel inadequate in their child's development	4
	The mother's need to make time for herself	2
	Belief that behavioural disorders will improve	2
	Preparing for primary school	2
	Children spend quality time	1
	Language development	1
	Material shortage at home	1
	Total	24

As seen at Table 15, childcare needs of working mothers, socialization of the child, parents' feel inadequate in their child's development, the mother's need to make time for herself, belief that behavioural disorders will improve, preparing for primary school, children spend quality time, language development and material shortage at home were seen as main reasons of the need of preschool education by the preschool teachers. Some teacher statements regarding the interview for this theme are as follows;

"… Before I go to first grade, everyone goes to kindergarten, everyone goes, I think there's a generalization going on. Secondly, there are a lot of working parents right now, especially when mothers need a care institution when they work. And preschool institutions can do so. That's why I think preschoolers are preferred, so I think they're sending it.…" (T2)

"I think the priority is the parents' work situation. Because if the parent is at home and not working, if they can spend enough time with their children, I don't think they prefer it very much. especially in young children. But if the parent is working, preschool institutions are indispensable if they have no one to leave…" (T3)

"…In fact, I think it addresses the need for care and increases women's participation in the workforce. that's why so many people prefer it. I think it has a huge impact, especially in the shrinking age.…" (T2)

"…At first, it was usually working parents, so the vast majority were working parents.…" (T1)

"I think especially for those who send it privately, as the minister said (!) because he has no one to look after, especially for those who send when they are younger, he does.…" (T5)

"…Some people send it because, like I said, there's no one to look after them at home. at least he sends it for school care, especially in younger age groups…" (T6)

"Nowadays, many families have become a little more aware of this issue, socializing children, making friends, etc. have come up. So, I think that's why they sent…" (T3)

"…socialization of child, a little more, at school…" (T1)

"If he's thought to be very antisocial, he'll be at work to socialize, to meet people and make friends." (T4)

"…at least instead of sitting around the house watching TV, the child will socialize at school… some mothers won't feel enough for their children… …Mothers and fathers are also inadequate for children somewhere, and because they feel it, I've seen even housewives, who are struggling with their finances, but they sent anyway in recent years.…" (T1)

"…What I see as reasons are these, she should have friends, socialize with her peers, get ready for primary school, learn how to hold a pencil, use scissors, learn numbers and letters, learn rules and not be a problem child when she starts primary school… (T6)

"As I mentioned earlier, the mother says that I can't get enough, my child spends most of his time on a TV tablet, he has no order.…" (T5)

"…There are also the following, of course, the mother takes care of another sibling at home, or if she is an only child, a mother is not enough, she feels inadequate, she wants the child to develop more, so that's one reason.…" (T6)

"…Because mothers didn't feel enough. Because the kids today aren't what they used to be. We used to sit 30 kids down and read a story or hold hands and play a ring game. But you can't just take 10 kids in front of you right now and tell a story. Because now there's TV, there's internet. Children have become much more active; you must tell that story in very different ways. you must play that game a lot differently to get to the kids, in order to play regularly with children, i.e., more mobile, more aware children of course environmental conditions, TV, internet, toys…" (T1)

"Sometimes mothers find it appropriate to send them to create time for themselves.…" (T5)

"The housewives also send them to make time for themselves.…" (T1)

"… For example, I had a child with a behavioural disorder. And when I talked to his parents, they said maybe sending him to school could be a solution. When he was 4 years old, they sended him from the beginning and said they wanted to take care of it." (T4)

"Some people want their kids ready for elementary school. And especially if they're going to attend this college, he's sending them to kindergarten here so the kid can get used to school and get to know everyone. It's really easier for first graders and the future.…" (T5)

"They send their children to develop their religion. sent to learn languages where I'm currently working…" (T4)

"I mean, if the kid doesn't have enough toys at home and he's bored.…" (T4)

"…in later years, housewives began to send…" (T1)

The findings on the views of preschool teachers on continuing face-to-face education during the pandemic

The views of preschool teachers on continuing face-to-face education during the pandemic are given in the Table 16.

Table 16. A glance face-to-face education during the pandemic.

Theme	Code	f
It must go on	because the working parent needs	4
	for children to continue their social development	3
	since distance education is not suitable	3
	in order not to adversely affect their academic development,	2
	to provide opportunity equality	1
Total		13

When the Table 16 is examined, all of the preschool teachers believe that preschool education must go on face to face during the pandemic because of many reasons such as the need of working parents, for children to continue their social development, since distance education is not suitable, in order not to adversely affect their academic development, to provide opportunity equality. Some teacher statements regarding the interview for this theme are as follows;

"It must go on because there have been times when working mothers have been in a very difficult situation. Working mothers had nowhere to leave their children. Here they isolated the elderly because of the pandemic. They couldn't leave it with grandma. I mean, they've had a lot of trouble. I think face-to-face training was essential for working families. But housewives who didn't work could

increase the chances of those who left by keeping their children at home. Because the fewer children who left, the less children who left, the more comfortable the environment for the pandemic." (T1)

"…Let me put it this way, during the pandemic, parents are somehow getting on with their jobs. No one's completely shut down. If parents come out, they're in contact with other people, many of whom use public transport. Most of them work in a public space. it is perfectly normal for children to go to school... So, I think they should go.…" (T3)

"…And then there's the situation of the parents... she has to work herself, where she leaves her child, who she leaves her/him to... who should be control of remote education of this child…" (T6)

"…Parents are in a very difficult situation, so there's nowhere for everyone to leave their children.…" (T3)

"…it also disrupts children's academic development and social relations …" (T4)

"…Because the first thing we look at is that when they stayed at home, it caused a serious lack of development socially. the children could not play as they wanted, they could not see their friends…" (T3)

"…it was necessary to ensure that both psychological, social and academic development of children was not disrupted.…" (T5)

"…Because distance education is not possible, I think there's a lot of waste in preschool. So, you must keep going face to face... It's not like one-on-one class. We can't do daily routines. It's like giving the child an event, having something done. It's just like teacher doing it, it's like homework. I don't think it's enough in distance education.…" (T4)

"It is not something that can be avoided with preschool distance education, TV shows... I don't believe in distance education anyway.…" (T5)

"…I don't think distance education is appropriate for our level. Children don't experience enough communication and interaction when they're from afar. It proper to say "stop" or "be quiet up" with limited time, it's all about sharing things... We tell stories and they talk in class all the time, and that's what the kid wants …" (T6)

"…Unfortunately, it is not possible to achieve equal opportunities in our country. I think that the necessary conditions should be met, and face-to-face training should continue in order not to open that gap…" (T2)

The findings on the views of preschool teachers on the continuation of private preschool institutions' activities during the pandemic process

Table 17 consists of the views of preschool teachers on the continuation of private preschool institutions' activities during the pandemic process.

Table 17. Views on the continuation of the activities of private preschool institutions during the pandemic process.

Theme	Code	f
Injustice	For teachers	6
	For parents	3
Deepening inequality of opportunity		5
Economic concerns and favouritism		1
Directing to private		1
Total		16

According to Table 17, preschool teachers think that it is injustice for both teachers and parents and deepening inequality of opportunity, continuation of the activities of private preschool but not state schools in the same way. They also indicated that this situation directs parents to choose private schools. Some teacher statements regarding the interview for this theme are as follows;

"Again, these closings and openings were also made without considering anyone's needs. yes, I don't mind being put in the position of a caregiver because yes, that's what I do. and I think this process

really benefits women and parents. I think that this is not considered for working parents. That's why I think it's the hour of all preschool institutions that should be talked about in the first place.…" (T2)

"… I honestly think this inequality is material. it was best to turn them all on when they needed to be opened, to close them all when they needed to be closed... I'd feel bad if I was a teacher at a private school in the process. It's positive that it's open for children. But for teachers, I don't think that should have made a difference... It's exactly like, we're paying for it, and you're providing care for our child…" (T4)

"…Private schools closed at one point. When the privates closed, they focused on online lessons. More parents were interviewed. Preparations were made at home for the online course. So it should not be thought that during the closed period, private teachers sat in their homes. No, there's been a lot of stress. Individual parents were searched. The children were asked about their condition. videos were made or online lessons were made, and children were tried to be served in the same way. But a preschool student can never be taught online. How efficient was that? They just saw their teachers and chatted. But I don't think that's enough. Because a preschool student should be able to see his teacher face-to-face, touch her, feel that way.…" (T1)

"…Of course, the teachers who were in private at the time were deeply resentful. You know, they thought public school teachers are teachers, but in private schools, they weren't teachers. There was also a dilemma among teachers …" (T1)

"For teachers at the private school, it turns out that "we give you your money, you will come, you will continue to work regardless of the circumstances". I'm not the only one thinking like that about it. Many of my friends have I talked to... That's the perception created, and the minister's speeches seemed to support it.…" (T5)

"…there was also a serious injustice for the teachers... Most private schools were already paying teachers very, very little. I talked to my friends during this period, and there were people who worked harder during distance education and had their salaries cut, for example.…" (T6)

"… inequality of opportunity... There's not much I can say. because preschool education has been made compulsory, but it still does not have the expected importance at the desired level in our country. And in the preschool period, as in many areas, the child of the person with the financial means, was able to continue in some way. But people with financial impossibility have again become victims. I don't think eba etc. is very adequate in this regard. Educational inequality, inequality of opportunity already existed, it just became more pronounced…" (T3)

"There was an injustice here because the children who went to public school also had working mothers. The working mothers of children who attending public schools are in a very difficult situation, where can they leave their children? If you're sending it to private school, so you're lucky if you have money ... because the primary schools continued, the public ones did not…" (T1)

"So, the inequality that already exists has been put in the eyes of more people... parents who sent them to private school continued to live closer to normal lives, parents who sent them to public school were forced to do so." (T6)

"Then there was inequality for children, some of which continued to progress faster and more effectively, some of them pushing.…" (T6)

"…I wish everyone would go on without any distinction between private and state schools. Because other children were deprived again from many things in this process... On the other hand, what is the sin of the children in the state schools... Anyway, even if it's a little bit more, I think, we have better conditions... There's an imbalance that's become even more unstable in the process, which I think was a strange material spiritual process.…" (T5)

"The reason the private institution is opening is to send the one who wants it. It works a little differently, and the situation of getting paid to the employees is also different, the fact that the kids don't come to school, schools won't get any money, and I think they're having a lot of trouble with it.… (T4)

> "… directing it to the private sector is completely. I mean, I don't think the whole point of preschool here was understood from the very beginning. Because really, yes, I'm an institution that already caters to working women. The fact that I'm closed really upsets all the balances. What we're doing is just people have to go private. But it was the same before. so, a kindergarten was an independent kindergarten, and an elementary school was already open for five hours and did not meet the needs of the mother, the woman, the parent.…" (T2)

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

During the period when schools are closed or students go to school just several days in a week and are at home in other times, for parents, especially for mothers, who had to continue their work on site, various problems aroused, such as not being able to accompany the student in need during the online lessons or not being able to find someone to take care of their child. Thereupon, the Ministry of National Education decided that education in preschool institutions should continue by face-to-face, considering the low incidence level of the disease in children and the rate of symptoms. In practice, there were some differences between private preschools and public preschools on procedures taken during this pandemic period. Different practices and some statements disclosed by the ministry caused reactions from preschool teachers. The "caregiver" controversy, which has already been going on for decades, has flared up again.

In this study caregiver role of preschool teachers were examined, by considering the parents' views on reasons for starting preschool education, the criteria no choosing a preschool institution, thoughts on preschool education during the pandemic process, employment status of parents, evaluation of the education received in the preschool education institution, and expectations from preschool institutions.

Findings suggest that parents send their children to preschool education institutions for socialization, obligation - need for care, physical and cognitive development needs, getting used to school - learning the rules, incompetence of parents, developmental delay, preparation for primary school, the need to spend quality time and their sibling going to school. As parallel to findings Diamond, Reagan, and Bandyk (2000) stated that on the one hand, conditions and need for care make it necessary for children to start pre-school education at an early age, on the other hand, some families may base their children's academic readiness on starting preschool.

Another finding of the study is about parents' choice of preschool institution. This category shows that it is important for parents the preschool teacher, the physical structure of the institution, the happiness of the child, the relations with the owner of the institution, the distance, positive references and the relations of the child with the friends in the institution, while they were deciding to the institution. There are studies showing that factors such as hygiene, education quality, security, travel time and institutionalism are effective factors in choosing an institution for parents (Barrett et al., 2015; Dahari & Ya, 2011; Perwita & Widuri, 2023). There are also studies emphasizing that the teacher is an important factor in choosing an institution (Jonathan et al., 2023; Lam, 1999). According to the findings of the Yeşil Dağlı's (2011) research, the order of the reasons for choosing the institution for the parents according to the level of importance is as follows; location, fee, reliability, educational activities, educational materials, availability of their hours, number of children in the group, being clean and tidy, teachers' education, physical characteristics, and positive reference.

A striking result of the research is related to the choice of letting students go to school during the pandemic. When the parents were asked about the preschool education during the pandemic process and effects of not sending the children to school during pandemic, they stated health as a positive aspect; layout change – rule bending, failure to meet developmental needs (skills – academic), inability to meet psychological needs, TV-tablet habit, failure to meet care needs as problems. Supporting the results of the current research, Erol and Erol (2020) emphasized that students who could not communicate with their peers, which have a great importance in the socialization of the

child, turned to digital tools during their stay at home. In this process, it was determined that the students used these tools excessively.

Another remarkable result of the research takes part in the category of sending to preschool institution according to employment status all the mothers and fathers expressed their opinion that even if the mother is not working, their child should receive preschool education, in cases other than the pandemic. They had different approaches about sending during the pandemic. But an important point here is that, in addition to the fact that parents do not send their children to school due to the stress caused by illness during the COVID-19 process, the financial difficulties experienced by some parents also disrupt the care of children (Drane, Vernon, & O'Shea, 2020). So, as supported by İnan (2020) one of the reasons parents don't send their kids to preschool education may be losing a job or getting into financial trouble for some other reason.

Penultimate result for the first part is about the views on benefits of preschool education. When it is asked to parents to evaluate the education received in the preschool education institution, they stated that their children have social (such as behavior acquisition and learning rules) and academic (such as learning foreign language, math and letters and pronunciation) achievements and that they find these achievements sufficient and are satisfied.

As the last finding of the study's first part, category of the parents' responses, expectations from preschool institutions includes the child's acquisition of social, physical and cognitive/academic skills and meeting the psychological needs of the child. Lam (1999) also, have stated in his study that, parents have expectations from preschools to increase the development of children, make children have a positive attitude towards learning, help children to develop self-confidence and self-care, improve their interpersonal communication and prepare them from home to society.

In the second part of the study, it is examined in depth the views of preschool teachers on the caregiver role of preschool education by analyzing their views on reasons to choose the profession, knowledge of the job description and requirements when choosing the profession, different aspects of preschool from other branches, value attributed to the profession by others, different aspects of preschool from other branches in terms of the value given, care and distraction attribution to preschool education, reasons parents send their children to preschool institutions, face-to-face education during the pandemic, continuation of the activities of private preschool institutions during the pandemic process.

As the first result of second part, reasons to choose being a preschool teacher is put forward. According to results, personal (such as loving children, desire to be a teacher and university score), economic (easy to be nominated and find a job) and social (environmental conditions) reasons are effective in profession choices of preschool teachers. Similarly, in the study of Kızıltaş, Halmatov, and Sarıçam (2012) preschool teacher candidates stated reasons for choosing this profession such as loving children, job security etc. According to TUIK Gender Statistics (2020), there were 5,910 males while there were 92,915 female teachers working in the 2019-2020 academic year as preschool teacher. Which suggest that the number of female preschool teachers is approximately 16 times the number of male teachers. It is possible to say that gender roles influence the difference being so large. Being a teacher is very much ascribed to women in Turkish society, and teaching is among the most suitable professions for women. The fact that they play with babies from a young age, so to say prepare for motherhood, so they tend to love children and therefore see teaching as suitable for themselves can be accepted because of their gender roles. And, in Turkey, even if one cannot be appointed to a public school, the possibility of working in private schools can make teaching attractive, considering the abundance of private schools. So that being a teacher may reduce employment and economic concerns to some extent.

Second result is about the process of choosing the profession. As the knowledge of the job description and requirements when choosing the profession category shows that any of the teachers had enough information about the job description of their profession and requirements of being a preschool

teacher. Considering the diversity of professional experience of the participants in the research, it can be concluded that career development and guidance studies for students are not sufficient in the past as in the recent past. In their study, Atli and Gür (2019) revealed that factors such as high income, convenience, and comfort, working hours, reputation, and job guarantee are effective in the career choice of high school students. Also, Atli, and Gür (2019) emphasize that although students indicate that they are the most important decision makers in their career choices, they seem to be constrained by job security and economic income values rather than their own interests, abilities and personality traits. That is even they do not know the requirements and detailed description of the profession, students may choose a career, as mentioned in the current study.

Another result of the study is about the perceptions on differences of preschool teaching from the other branches. When the teachers were asked about the different aspects of preschool from other branches, they stated that they are different from other branches in terms of importance for the child, connection with the child, need of care, obligation to teach basic behaviors, responsibility level, interaction type, difficulty noticing academic achievements, being together all day and having no break. Education is a process in which the product can be observed in the long term. Even student development revealed through exam grades, etc. at other levels of education does not actually represent a certainty; the performance of children in their future lives is more evidence of this progress. So, this is more difficult for preschool level, even parents see the improvement in their children's behaviors, most of them may expect a concrete document to see that. But, in Turkey with the new application of Ministry of Education in 2023 September, all the written exams were abolished until the end of the 4th grade of primary school. It is hoped that this application will change the perspective of parents who are obsessed with evaluating success, even in preschool. In addition, when the situations revealed by the lack of recess in preschool, unlike other levels, are examined, in their studies, Sabancı, Altun, and Uçar Altun (2018), and Can and Kılıç (2019) found that the lack of break periods and uninterrupted education strain preschool teachers physically and psychologically and affect their communication with their colleagues. and reveal that it negatively affects their relationships.

The value attributed to the profession by others is another result of the research. In the category of value attributed to the profession by others, preschool teachers have different answers for the value attributed to their profession by others. Some of the teachers believe that their profession is not valued enough because of prioritizing care rather than academic processes and ignorance of the importance of preschool education. They also stated that it wasn't valued in the past but now this is changing. Also, there is a belief that it can be changed according to the type of institution.

Another finding is that the teachers to specify different aspects of preschool from other branches in terms of the value given. Pre-school teachers mentioned both positive and negative aspects different from other branches in terms of value of their branches. The connection and value from being the first teacher was the positive aspect, on the other hand, inability to get financial reward was the negative.

In the study it was also examined the care and distraction attribution by others to preschool education and whether they feel so. Result shows that in this category preschool teachers stated that the main reasons of such a feeling are parent's attitude and expectations for only basic needs and behaviors. They accept that they serve for a group of students, have need of care. But they all see their profession much more than this. In the research by Uysal, Özen Altınkaynak, Taşkın, Akman, and Dinçer (2016), in which they examined preschool teacher candidates' metaphorical perceptions of preschool education program, the fact that the most repeated metaphor is "mother" may support that there is a general tendency in a part of society, even between preschool teachers themselves, to identify preschool teach with the mother. So, these people have some expectations from preschool teachers about "care" like mothers.

Another important result of the study stated with the category of the reasons parents send their children to preschool institutions. Teachers shared their opinions as the as the closest witnesses of the

process. According to their answers childcare needs of working mothers, socialization of the child, parents' feel inadequate in their child's development, the mother's need to make time for herself, belief that behavioral disorders will improve, preparing for primary school, children spend quality time, language development and material shortage at home were main reasons of the need of preschool education.

In the face-to-face education during the pandemic category, all the preschool teachers stated that preschool education must go on face to face during the pandemic because of many reasons such as the need of working parents, for children to continue their social development, since distance education is not suitable, in order not to adversely affect their academic development, to provide opportunity equality. According to results of Yıldırım (2021) preschool teachers stated Covid-19 Pandemic had some negative effects on preschool education in terms of teaching basic concepts, social, mental, and emotional development of children, teacher-student interaction, school adaptation. But also, they stated increase in Parent-student interaction and parental interaction as positive effects. Additionally, Yıldırım (2021) also states that teachers emphasize the importance of face-to face education for preschool. According to Lee and Bierman (2015), classroom lives are very important for students. Especially emotional support is one of the indicators of student's performance and adaptation to the school. Unfortunately, students could not feel that support from their teacher during that pandemic, as much as they feel in normal educational life.

As the last result of the second part of the study consists of the preschool teachers views about the continuation of the activities of private preschool institutions during the pandemic process. Preschool teachers think that it is injustice for both teachers and parents and deepening inequality of opportunity, continuation of the activities of private preschool but not state schools in the same way. They also indicated that this situation directs parents to choose private schools.

In summary, findings show that parents prefer preschool education for their children due to their cognitive, affective, social development and care needs. When they choose the school they consider the teacher, the institution (institutional and physical), the child's psychological well-being. When evaluated in terms of the pandemic process, it has been revealed that there are as many people who send to school due to work reasons as there are those who do not send it to school due to health concerns. It also seen that expectations of parents from preschool institutions are parallel to the reasons why they send their children to school. In the second part, findings show that even if they had no idea about the detail requirements of the profession, participant have chosen their career for personal, economic, and social reasons. The participants put forward the view that preschool education differs from other branches in the context of experiences, process, and relations with the child, differs from the value it sees, and differs in terms of the value given based on the connection and value from being the first teacher, Inability to get financial reward. Preschool teachers also stated that there is an inequality and injustice between both preschool and other levels and public and private sector.

All in all, according to results of this research, while parents emphasized the need for care for their children, preschool teachers stated that they were aware of the group they worked with and served for a group in need of care. The point that creates problems about the care situation is that teachers are viewed as "just" caregivers and approached to their work in this way. In the research, it was stated by the preschool teachers that this is not related to the concept of "caregiver", and that the "caregiver" job is a very difficult, self-sacrificing, and demanding profession, but it is not their sole aspect of their job.

Education, which is a fundamental activity of humanity (Kaplan, 2013) and includes all social processes that prepare individuals for cultural life, shapes and organizes individual and social life (Gutek, 2014, p.5). Education, which has the power to create deep transformation effects both individually and socially (Wantchekon, Klašnja, & Novta, 2014), derives this power from its defined and undefined functions. There are many studies that reveal the importance of preschool education as

discussed before. As a result of Kılıç's (2008) research, which is one of these studies, compared to whether they received pre-school education the first-year primary school students are different in terms of literacy, mathematics and self-care skills, motor, social, emotional and language development, and these differences are in favor of the students who receive preschool education. National Education Statistics Formal Education 2020/'21 Report shows that 3-5 age group schooling rate is 28.35%, 4-5 age group schooling rate is 36.79% and 5 age schooling rate is 56.89% (MEB, 2021). Additionally, Ministry of Education states that the relative to increase at the schooling rate of 5 age, the schooling rate of 3-5 age group increased to 48%; moreover, by the end of 2022, the schooling rate target for the 3-5 age group is 76%.

It is obvious that the importance given to preschool education by the government in Turkey is increasing day by day. It is hoped that this study will contribute to the increase in the values and importance of preschool teachers, who are the most important actors of preschool education, in parallel with the education given to preschool education, and to increase awareness on the subject.

Recommendations for researchers

To carry out such an important level of education effectively and efficiently, the current situation and improvement suggestions can be put forward by examining the professional problems experienced by preschool teachers in more depth.

International research on the subject (if any) can be systematically examined and common and different aspects, applications, necessary adaptations and suggestions can be presented.

Recommendations for practitioners

Considering the situation where parents prefer and/or are forced to choose private schools, improvements and regulations should be made in public schools in order to offer equal education rights to every child.

In-service training/courses/informative conferences on communication and problem-solving skills should be organized for preschool teachers and parents.

Institutions should have detailed precautions and action plans developed for different possible disaster situations, possible psychological conditions in the processes should be taken into account more, and practices should be implemented to ensure justice regardless of the conditions.

Ethics and Conflict of Interest

During the research process, all instructions stated within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. In this study, the actions stated under the heading "Actions against Scientific Research and Publication Ethics" were carefully avoided and no actions stated as contrary were carried out. This research has an Ethics Permit from Süleyman Demirel University Social and Humanities Ethics Committee with decision dated 15.04.2021 and numbered 106/38. No potential conflict of interest was reported by the author(s).

REFERENCES

Allen, L., Kelly, B. B., & National Research Council. (2015). *Child development and early learning. In Transforming the workforce for children birth through age 8: A unifying foundation*. National Academies Press (US).

Atli, A., & Gür, S. H. (2019). Lise öğrencilerinin meslek tercihleri ve bu tercihlerine etki eden faktörler [High schools students' career choices and factors affecting their choices]. *Journal of Career Psychological Counseling, 2*(1), 32-53.

Barrett, P., Davies, F., Zhang, Y., & Barrett, L. (2015). The impact of classroom design on student learning: Final results from a holistic, multi-level analysis. *Buildings and Environment, 89*, 118-133.

Bell, J. (2014). *Doing your research project: A guide for first-time researchers.* McGraw-Hill Education (UK).

Berlinski, S., & Galiani, S. (2007). The effect of a large expansion of pre-primary school facilities on preschool attendance and maternal employment. *Labour Economics, 14*(3), 665-680.

Biesta, G. (2009). Good education in an age of measurement: On the need to reconnect with the question of purpose in education. *Educational Assessment, Evaluation and Accountability (formerly: Journal of Personnel Evaluation in Education), 21*(1), 33-46. https://doi.org/10.1007/s11092-008-9064-9

Bush, T. (2007). 'Authenticity in research – reliability, validity and triangulation', Chapter 6 in R. J. Briggs and M. Coleman (eds) *Research methods in educational leadership and management,* 2nd edn. London: Sage Publications.

Can, E., & Kiliç, Ş. (2019). Okul öncesi eğitim: Temel sorunlar ve çözüm önerileri [Pre-school education: basic problems and solution suggestions]. *Milli Eğitim Dergisi*, *48*(1), 483-519.

Cassirer, N., & Addati, L. (2007). *Expanding women's employment opportunities: Informal economy workers and the need for childcare.* Geneva, Switzerland: ILO.

Cohen, L., Manion, L., &Morrison, K. (2018). *Research methods in education.* New York: Routledge, Taylor & Francis Group.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches.*USA: Sage publications.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches.* Thousand Oaks, Calif.: Sage publications.

Dahari, Z. B., & Ya, M. S. B. (2011). Factors that influence parents' choice of pre-schools education in Malaysia: An exploratory study. *International Journal of Business and Social Science, 2*(15), 115-128.

Diamond, K. E., Reagan, A. J., & Bandyk, J. E. (2000). Parents' conceptions of kindergarten readiness: Relationships with race, ethnicity, and development. *The Journal of Educational Research, 94*(2), 93-100. https://doi.org/10.1080/00220670009598747

Doğan, S. (2014). Eğitimin işlevleri [Functions of education]. *Eğitim bilimine giriş* [Introduction to educational science] (Editor Celal Teyyar Uğurlu), Ankara: Egiten Publishing.

Drane, C., Vernon, L., & O'Shea, S. (2020). The impact of 'learning at home' on the educational outcomes of vulnerable children in Australia during the COVID-19 pandemic. *Literature Review prepared by the National Centre for Student Equity in Higher Education, Curtin University, Australia.*

Eren, S. K., Teloğlu, Ş. K. Ç., & Ilhan, T. (2017). Türkiye'de erken çocukluk eğitimine uluslararası bir bakış: OECD Karnesi [An international view of early childhood education in Turkey: OECD Grades]. *Uşak University Journal of Social Sciences, 10*(ERTE Special Issue), 125-149.

Eğitim Reformu Girişimi (ERG). (2017). *PISA 2015: Genel bulgular ve eğilimler* [PISA 2015: General findings and trends]. İstanbul: Sabancı University Istanbul Policy Center. Retrieved from http://www.egitimreformugirisimi. org/tr/node/1787

Einarsdottir, J. (2014). Children's perspectives on the role of preschool teachers. *European Early Childhood Education Research Journal, 22*(5), 679-697.

Erol, M., & Erol, A. (2020). Koronavirüs pandemisi sürecinde ebeveynleri gözünden ilkokul öğrencileri [Primary school students through the eyes of their parents during covid-19 pandemic]. *Milli Eğitim Dergisi, 49*(1), 529-551. https://doi.org/10.37669/milliegitim.766194

Eroğlu, Ö., & Şimşek, H. A. (2021). Türkiye'de okul öncesi eğitime eleştirel pedagojik yaklaşim [The critical pedagogical approach to pre-school education in Turkey]. *Eurasian Journal of Social and Economic Research (EJSER), 8*(2), 387-397.

Eryılmaz, B. (2021). *Okul öncesi eğitim kurumlarının kalitesine göre 3-6 yaş çocuklarının öğretmenleri ve akranları ile etkileşimlerinin incelenmesi* [Examining the interactions of 3-6 years old children with their teachers and peer according to the quality of pre-school education institutions]. (Unpublished master's thesis). Ege University.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics, 5*(1), 1-4. DOI: 10.11648/j.ajtas.20160501.11

Einarsdo´ Ttir, J. H. (2003). The role of preschools and preschool teachers: Icelandic preschool educators' discourses. *Early Years: An International Journal of Research and Development, 23*(2), 103-116.Fraenkle, J. R., &Wallen, N. E. (2009). *How to design and evaluate research in education.* New York: McGrow-Hill.

Gutek, G. L. (2014). *Eğitime felsefi ve ideolojik yaklaşımlar* [Philosophical and ideological approaches to education]. Nesrin Kale (Trans.) Ankara: Ütopya Publisher.

Haimi Adnan, A., & Smith, E. (2001). The social functions of education in a developing country: the case of Malaysian schools and the role of Malaysian teachers. *Intercultural Education, 12*(3), 325-337. https://doi.org/10.1080/14675980120087516

Hanushek, E. A., & Wößmann, L. (2007). The role of education quality for economic growth. *World Bank policy research working paper*, (4122). https://openknowledge.worldbank.org/bitstream/handle/10986/7154/wps4122.pdf?sequen

Hoşgörür, V., & Taştan, N. (2007). Eğitimin işlevleri [Functions of education]. *Eğitim bilimine giriş* [Introduction to educational science] (Ed. Özcan Demirel and Zeki Kaya). Ankara: Pegem Publishing.

Hüseyinli, N., & Hüseyinli, T. (2016). Çocuk bakımının kadın işgücü üzerinde etkileri ve hukuki düzenlemeler [Effects of child care on women labor force and legal arrangements]. *Akdeniz İİBF journal*, *16*(34), 108-137. https://doi.org/10.25294/auiibfd.308032

İnan, H. Z. (2020). Covid-19 pandemi sürecinde okul öncesi eğitimin yeniden yapılandırılması [Restructuring early childhood education during the Covid-19 pandemic]. *Milli Eğitim Dergisi*, *49*(1), 831-849. https://doi.org/10.37669/milliegitim.754307

Jonathan, S. A., Rantung, P. L. R., & Mandagi, D. W. (2023). Determining factors for parents to choose a school: Empirical analysis of religious based private schools. *QALAMUNA: Jurnal Pendidikan, Sosial, dan Agama*, *15*(1), 573-584.

Kakıcı, H., Emeç, H., & Üçdoğruk, Ş. (2007). Türkiye'de çalışan kadınların çocuk bakım tercihleri [in Turkish]. *Istanbul University Econometrics and Statistics e-Journal*, *5*, 20-40.

Kaplan, İ. (2013). *Türkiye'de milli eğitim ideolojisi ve siyasal toplumlaşma üzerine etkisi* [National education ideology in Turkey and its impact on political socialization]. İstanbul: İletişim Publications.

Kılıç, Z. (2008). *İlköğretim birinci sinif öğretmenlerinin görüşlerine göre okul öncesi eğitim alan ve almayan öğrencilerin gelişim becerilerinin karşılaştırılması* [in Turkish]. (Unpublished master's thesis). Beykent University, İstanbul.

Kızıltaş, E., Halmatov, M., & Sarıçam, H. (2012). Okul öncesi öğretmenliği öğrencilerinin öğretmenlik mesleğine yönelik tutumları [Preschool department students' attitudes about profession of theaching (The case of Agri Ibrahim Cecen University)]. *Mehmet Akif Ersoy University Journal of Education Faculty*, *12*(23), 173-188.

Kızıloluk, H. (2013). *Eğitimin toplumsal temelleri* [Social foundations of education]. Ankara: Anı Publishing.

Krippendorp, K. (2004) *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage.

Lam, H. M. Y. (1999). A study of Hong Kong parents' views on kindergarten education. *Early Child Development and Care, 159*(1), 17-24. https://doi.org/10.1080/0300443991590103

Lee, P., & Bierman, K. L. (2015). Classroom and teacher support in kindergarten: Associations with the behavioral and academic adjustment of low-income students. *Merrill-Palmer quarterly (Wayne State University. Press)*, *61*(3), 383-411. doi: 10.13110/merrpalmquar1982.61.3.0383

MEB. (2011). *Çocuk gelişimi ve eğitimi: Erken çocukluk eğitiminde temel ilkeler* [in Turkish]. Ankara: T.C. Ministry of Education.

MEB. (2021). *Millî Eğitim istatistikleri, örgün eğitim 2020/'21* [National education statistics, formal education 2020/'21]. Ankara: T.C. Ministry of Education.

Miles, M, B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded Sourcebook.* (2nd ed). Thousand Oaks, CA: Sage.

Narimbaeva, L. K. (2020). The development of the preschool education system is a requirement of the times. *The American journal of social science and education innovations*, *2*(11), 108-111. i: https://doi.org/10.37547/tajssei/Volume02Issue11-18.

Oktay, A. (1999). *Yaşamın sihirli yılları: Okul öncesi dönem* [The magic years of life: Preschool period]. İstanbul: Epsilon Publications

Perwita, D., & Widuri, R. (2023). Education study: Parents' preference for private schools over state schools. *EQUILIBRIUM: Scientific Journal of Economics and Its Learning*, *11*(1), 64-75.

Sabancı, A., Altun, M., & Uçar Altun, S. (2018). Okul yöneticilerinin, öğretmenlerin ve velilerin görüşlerine göre ana sınıfı eğitiminde karşılaşılan sorunlar [Problems encountered in kindergarten education according to the opinions of school administrators, teachers and parents]. *Journal of Educational Management in Theory and Practice*, *24*(2), 339-385

Scottish Executive. (2007). *The Child at the Centre: Self-evaluation in the early years.* Scotland: Scottish Executive.

The World Bank (2015). *Supply and demand for childcare services in Turkey: a mixed methods study*. Washington, D.C.: World Bank Group.

Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection. *Ethnobotany Research and applications*, *5*, 147-158.

TUIK-Turkish Statistical Institute (2021). *Toplumsal cinsiyet istatistikleri 2020* [Gender statistics 2020]. Ankara: TUIK-Turkish Statistical Institute

Uysal, H., Altınkaynak, Ş. Ö., Taşkın, N., Akman, B., & Dinçer, F. Ç. (2016). Okul öncesi öğretmeni adaylarının okul öncesi öğretmenliği programına ilişkin metaforik algıları [Preschool teacher candidates' metaphoric perceptions about preschool teacher training program]. *Cumhuriyet International Journal of Education-CIJE, 5*(3), 1-15.

Wantchekon, L., Klašnja, M., & Novta, N. (2014). Education and human capital externalities: Evidence from colonial Benin. *The Quarterly Journal of Economics*, *130*(2), 703-757. https://doi.org/10.1093/qje/qjv004

Yeşil Dağlı, Ü. (2012). Çocukları okul öncesi eğitim kurumlarına devam eden velilerin önem verdikleri kurum özellikleri [The importance of program characteristics for parents of children attending early childhood programs]. *The Journal of Social Sciences Research, 7*(2), 266-286.

Yıldırım, B. (2021). Preschool education in Turkey during the Covid-19 pandemic: A phenomenological study. *Early childhood education journal*, *49*(5), 947-963. https://doi.org/10.1007/s10643-021-01153-w

Zhongming, Z., Linong, L., Xiaona, Y., Wangqiang, Z., & Wei, L. (2021). *Using Digital Technologies for Early Education during COVID-19: OECD Report for the G20 2020 Education Working Group.* OECD Publishing, Paris. https://doi.org/10.1787/fe8d68ad-en

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DETERMINING THE FACTORS THAT AFFECT THE ATTITUDE OF PRIMARY SCHOOL TEACHER CANDIDATES TOWARDS E-ASSESSMENT AND TECHNOLOGY

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Abstract

The aim of this study is to determine the attitudes of prospective primary school teachers towards technology and e-assessment in the distance education process. The study was designed according to the correlation method. The study was applied to students in all grades studying in the Department of Elementary Education of a state university in Turkey. In this study, "attitude scale towards technology", "attitude scale towards e-assessment and "demographic information form" were used to collect data. The results of the analysis showed that the relationship between the attitude towards e-assessment dependent variable and the independent variables of gender and continuous access to the internet was positive and direct. In addition, it was found that the relationship between the attitude towards technology and gender, the frequency of using technology and the frequency of using distance education was positive and directly related. It was observed that the independent variables of gender, grade level, frequency of distance education use, frequency of internet use positively affected the dependent variables of e-assessment and attitude towards technology. Accordingly, it can be said that these factors should be keep in mind in e-assessment and technology use.

Keywords: E-assessment, technology, attitude, pre-service elementary teacher.

INTRODUCTION

Presently, technological advancements hold the promise of distinguishing traditional education. It can be asserted that the integration of new technologies into educational settings is crucial for enhancing the efficacy of educational processes and simplifying the tasks of both students and teachers. Consequently, the incorporation of technology in educational institutions is essential to establish an advanced and contemporary education system (Musurmonov et al., 2021). Moreover, the active integration of technology into educational settings across various aspects of life fosters continuous learning. Arslan and Şendurur (2017) highlighted the close connection between technological advancements and the effectiveness of educational institutions, emphasizing that the impact is contingent on the institutions' qualifications. Particularly in the 21st century, the significance of technology in education is steadily increasing (Topçu & Ersoy, 2020). In an era where computer technologies play a vital role, technology-supported education has become indispensable on a global scale (Bhalla, 2013; Güllüpınar et al., 2013; Hew & Brush, 2007).

Educational technology plays a crucial role in providing students with interactive content, enhancing their comprehension of subjects. The use of audiovisual materials captures students' attention and facilitates their understanding. Moreover, educational technology allows for the customization of materials and learning pace according to individual student needs (Aktaş & Çoban Sural, 2023). This

individualized approach enables students to progress at their own speed, acquiring knowledge in a manner that aligns with their unique learning styles. Additionally, educational technology expands access for students facing learning difficulties due to factors like geographical location or physical barriers. Online resources, distance learning, and other technology-based methods empower students to learn from anywhere globally (Araz et al., 2023).

Technology tools create interactive learning environments, transforming students from passive listeners to active participants. The richness and variety of teaching materials provided by educational technology support classroom teaching, aiding teachers in planning lessons more effectively and efficiently. Furthermore, educational technology facilitates online interaction among students and teachers, improving collaboration and group work skills. It also offers innovative methods and tools, making teaching more effective, engaging, and student-centered (Ceylan et al., 2023). Notably, technology-supported teaching-learning environments contribute to enduring learning at the individual level (Cabı, 2016; Paydar & Doğan, 2019), and considering the ongoing development of technology, distance education initiatives also contribute significantly to individual growth.

Theoretical Background

Distance education is a field of education where students are provided with a curriculum using technology, without being physically in the same environment (Schumacker & Lomax 2010). Education increases student interaction through tools such as interactive learning tools, virtual classrooms and online forums. This enables students to build closer relationships with each other and with their teachers (Şenyurt & Şahin, 2022). Thanks to distance education, learners are able to manage the educational processes through the student-teacher, student-student and student-content interactions in asynchronous and synchronous environments (Çardak & Güler, 2022). Today, distance education is also defined as a form of teaching in which learners take part in learning activities together or independently via the internet (Clark, 2020; Orakçıoğlu, 2019). In addition to these, how important the content of applications is in distance education should not be overlooked.

While preparing content in distance education, it is known that transferring, introduction, original text, summary, exercises, evaluation questions and resources to be used should be included (Kocatürk Kapucu, & Uşun, 2020). These concepts are important to ensure the integrity of a lesson and to provide students with an effective learning experience. Each section should be carefully designed to enable students to understand, remember, apply and evaluate the topic. In the introduction part, the importance of the information to be given, why it should be known and learned is explained with the lives of the students. This is the part that will arouse students' interest and enable them to learn carefully. The main text part is the part where the content and subheadings are explained. In the original text, the content is in an informal form and there is a narration like speaking. In the summary part, explanations about the content described and the results of the discussion are included. In the exercises part, questions are included for students to repeat what they have read. The evaluation part includes the questions asked to enable students to see to what extent the goals under the learning goals heading have been achieved and to evaluate them. In the part of utilized resources, the sources used are given in this section with an explanation. Besides, the resources to be consulted for students who want to reach more detailed information are also given in this section (Kırbaç et al., 2023).

The role assumed by the teacher in distance education is very crucial in the success of the educational application. The teacher should start the session in a loud voice, informally, and frequently use student names (Akdemir, 2011). The teacher should look at the camera and make effective eye contact with the participants on the opposite side. Quick and unexpected movements should not be made. It should be spoken clearly, slowly, and regularly. The teacher should ask questions and wait for the answers to these questions (Çakır, Calp, & Doğan, 2015). In distance education, teachers can use video communication programs such as Zoom, Skype, FaceTime, and WhatsApp as alternative video conferencing (Kaya, 2012). It can be stated that teachers' motivation of students and increasing their motivation for learning will also contribute to the academic success of the student in the process of distance education (Amiryousefi & Geld, 2021).

In recent years, the rise of digitalization and distance education applications has transformed traditional assessment and evaluation methods and enabled us to turn to e-assessment applications. In this context, evaluations are required to determine whether distance education has achieved its general purpose. Evaluations made through distance education are also called e-assessment. E-assessment in distance education can be defined as evaluating student achievement and the distance education system (Altan & Seferoğlu, 2010). It is important to use different methods in this process to make the evaluation activities and teaching materials more objective and effective. It is very important for students and teachers to determine what and how much students have learned after distance education. This can provide feedback to both the student and the teacher. As a result of this evaluation, teachers choose to make educational activities more efficient, and students choose to overcome their learning deficiencies. The main objective of evaluation in distance education is to determine the success degree of education or practice objectively. For assessment in distance education to be impartial, the evaluation criterion should be prepared before starting the application (Çakır, Calp, & Doğan, 2015). In addition, high motivation and positive student attitudes also play a key role in the success of distance education.

Correctly using technology in educational processes allows both to obtain the highest efficiency from education and to conduct educational activities in compliance with the requirements of the age. Technologies frequently used in distance education environments are important for students to be accustomed to these tools. In this respect, it can be said that the technologies used in educational environments have a great benefit in the improvement of students' attitudes towards technology (Özdamlı, 2017). Improving the attitude towards technology in students brings along effective use of technology. The educational environment may be made more qualified by using certain technological materials according to the interests and needs of learners (Elçiçek, 2022).

It can be said that with the development of technology, distance education has gained importance and appealed to more students (Ersoy & Gürgen, 2021). In this context, the important and effective role assumed by the teacher in distance education increases the importance of teacher education. The training of prospective teachers should be versatile. Raising teachers who are asking, questioning, innovative, and most importantly with information skills will increase the quality of education and training. Teacher candidates should be familiar with distance education processes to be intertwined with technology, develop a positive attitude towards technology (Arslan at al., 2019; Bayram, at al., 2019; Kocayiğit & Uşun, 2020), and be able to reach and evaluate their students through distance education. Affective characteristics of students such as interest, attitude and anxiety are important in terms of getting effective results in education (Anderson & Bourke, 2013; Kasap, 2021). In addition, when distance education tools are employed in the distance education process, its relationship with students' performance requires the attitude variable to be kept in mind in the process (Hewson, 2012). On the other hand, the fact that individuals' attitudes towards the exam and their opinions affect the validity of the measurement makes the attitude variable important (Kurbanoğlu & Olcaytürk, 2023). In this context, students' attitudes towards e-assessment and their attitudes towards technology, which is thought to be directly related to the e-assessment process, should be kept in mind in the process of distance education.

As stated in the "2023 Education Vision of the Ministry of National Education of the Republic of Turkey", digital contents are interactive materials that have a strong pedagogical approach, prioritize conceptual depth and have subject integrity (Ministry of National Education, 2018). In this context, it can be said that it is easier to create digitally rich environments such as interactive experiments which are connected to real-life and difficult to perform in the physical environment, animations in which abstract concepts are visualized. Nowadays, with the advancement of technology, distance education has reached varying types of students with the different media and tools it offers. All these show that the easy access to information and communication technologies and the ability to use different technologies for educational purposes are effective in the widespread use of distance education applications (Seaman et al., 2018; Lee, 2017). The Covid-19 pandemic has led to widespread

recognition and acceptance of distance education as a method of learning and teaching. It has encouraged teachers, students and parents to engage with digital education tools and platforms.

Existing Research

Due to the Covid-19 outbreak, there has been a shift from face-to-face education to distance education in many countries. In this process, students from elementary school to university students in Turkey as well as education and training activities as well as in other countries has continued through distance learning. Thus, elementary teacher candidates' attitudes towards technology and e-assessment in the distance education were discussed in this study. When the researches related to this study and the literatures on distance education are examined, it is seen that the following topics are mostly emphasized: Application and history of distance education (Yıldırım et al., 2023). Realization of foreign language teaching through distance education (Şen Ersoy, 2023; Kasap, 2020), selection of distance education environments (Yeşil & Balcı Karaboğa, 2023), internet-based distance education (Akdemir, 2011), distance education in higher education (Cabı, 2016), attitudes towards distance education (Kokoç, 2019) and web-based distance education systems (Altan & Seferoğlu, 2010). However, when the research are examined, it draws attention to the paucity of any research examining the relationship between teacher candidates' attitudes towards e-assessment and the attitudes towards technology and the factors affecting this relationship. Barriers to distance education were identified in four areas: technical, instructional, communicative and environmental (Elçiçek, 2022). It was found that students' reading and listening skills developed well in distance English courses, but they had difficulty in writing (Karabacak, 2022). Otyakmaz (2022) stated that the students communicated well with their teachers in distance education and were satisfied with the learning process. Although the students experienced some problems in the distance education process, they were satisfied because it provided the opportunity to repeat and provided a flexible learning environment (Turan, 2022). Yiğit (2022), in his study with undergraduate students, stated that students have a negative attitude towards distance education. In addition, Bilgiç (2022), in his study on undergraduate students, stated that students have a negative attitude towards distance education due to various problems.

In the distance education, it can be said the materials and content used will greatly contribute to student motivation, attitude and learning. In addition, it can be said that this study is important in measuring elementary teacher candidates' attitudes towards technology and e-assessment in the process of distance education. In this connection, it is hoped that this study will make important contributions to researchers and teacher candidates. It is thought that the study can make important contributions to researchers about what theoretical or practical measures can be taken by determining the relationship between elementary teacher candidates' attitudes towards e-assessment and technology, and it will be useful for elementary teacher candidates in recognizing the factors that affect the process of distance education. Furthermore, considering the importance of continuing distance education in the epidemic period all over the world, it is vital to reveal the factors affecting the attitudes of elementary teacher candidates towards e-assessment in the study and to resolve the difficulties and deficiencies in this field and to develop solutions for this. However, there is no study that analyzes the mutual effects and relationships of these variables on the model, especially by using structural equation modeling. With this feature, it is predicted that this study will make important contributions to the field. In this context, the study aims to reveal the relationships between elementary teacher candidates' attitudes towards e-assessment and attitudes towards technology and some demographic variables.

Purpose of the Study

The purpose of this study is to investigate and understand pre-service primary school teachers' attitudes towards the integration of technology and e-assessment methods into the distance education process. As the educational environment evolves, it is crucial to examine how pre-service teachers perceive and interact with technology-supported learning environments, especially in the context of distance education. It is extremely important to assess teachers' technological competencies, investigate their attitudes towards technology and examine their perspectives on e-assessment. Identifying the perceived barriers and facilitators that affect pre-service classroom teachers' readiness to integrate technology and

e-assessment into their teaching practices is important for the effectiveness of the teaching process. It can provide useful information for the development of teacher education programs that aim to improve primary school teachers' technological readiness and pedagogical skills for effective participation in distance learning environments. It will not only provide a better understanding of pre-service teachers' attitudes towards technology and e-assessment, but also shed light on strategies for educators to find ways to improve distance education.

METHOD

Design of the Study

In the study, one of the quantitative research methods, the relational (correlational) method was employed. The relational method is a study that investigates the relationship between two or more variables without interfering with the variables. One of the aims of the relational method is to help explain human behavior or predict its consequences (Fraenkel at al., 2012). Correlational studies are divided into two as exploratory and predictive. The multifactorial predictive design was employed in this study. The multifactor predictive design used in this study aims to test a model in which multiple variables can predict each other. This design evaluates how well one or more independent variables can predict the dependent variable. That is, this study may aim to understand the predictive power of multiple variables on each other. This type of design provides researchers with the opportunity to examine the interrelationships of a set of variables and to assess the extent to which these variables influence each other. This method is a powerful research tool for understanding the complexity of multiple variables and their interactions with each other.

Participants

This study was conducted in the spring semester of the 2021-2022 academic year with students studying in the classroom teaching department of a state university in Ankara. The data were collected on a voluntary basis according to the convenience sampling method. The demographic characteristics of the participants are shown in Table 1.

Table 1. Descriptive information of the study participants

Variable	Category	N	%
Gender	Male	88	19.8
	Famale	356	80.2
Grade Level	1st grade	82	18.5
	2nd grade	174	39.2
	3rd grade	119	26.8
	4th grade	69	15.5
Continuous Access to the Internet	Yes	321	72.3
	No	123	27.7
Frequency of Using Distance Education	Never	6	1.4
	A Few Times a Week	263	59.2
	Everyday	175	39.4
Weekly Use of the Internet	1-7 hours	85	19.1
	8-21 hours	127	28.6
	22-35 hours	126	28.4
	More than 36 hour	106	23.9
Total		444	100

Data Collection Instruments

In the current study, the "attitude towards technology scale" was employed to determine elementary teacher candidates' attitudes towards technology, and the "attitude towards e-assessment scale" and "demographic information form" were used to determine their attitudes towards e-assessment. The permissions were obtained from the authors for the scales used in the study. Information about the instruments used to collect data is presented below:

Demographic Information Form: This form was developed by the researchers. In the demographic information form, there are items to elicit information about the participants' gender and grade level, if they have continuous access to the Internet, their frequency of using distance education, and their frequency of using the internet. The variables discussed in the study and the model established were selected and established according to previous studies and the theoretical framework. In this context, the variables in the above-mentioned demographic information form were included in the study by examining the relevant literature, considering that attitudes towards e-assessment and technology would be affected by technology-related variables and distance education process.

Attitude Scale towards Technology: To determine the attitudes towards the technology of the elementary teacher candidates, "The Technology Attitude Scale", which was developed by Aydın and Kara (2013), was employed for teacher candidates. The scale has 17 items and is one-dimensional. A confirmatory factor analysis was conducted, and the following goodness of fit index were obtained; chi-square / df = 4.55, RMSEA = .097, GFI = .86, AGFI = .81, CFI = .94, NNFI = .93, SRMR = .066. The Cronbach Alpha reliability coefficient of the scale was found to be .87. Within the scope of this study, confirmatory factor analysis was conducted. The number of items of the scale did not change. Goodness of fit indices were chi-square / df = 4.03, RMSEA = .090, GFI = .88, AGFI = .85, CFI = .95, NNFI = .94, SRMR = .060. The reliability in this study was found to be .90.

Attitude Scale Towards E-Assessment: "Attitude Scale towards E-Assessment for University Students" developed by Bahar (2014) was used to determine elementary teacher candidates' attitudes towards e-assessment. The scale has 23 items. An exploratory factor analysis was conducted and the scale was found to have a four-dimensional structure. While the first factor explained 27.1% of the total variance, the scale items as a whole explained 59.5% of the total variance. However, it was found that the factor loads in the scale varied between .52 and .88. The first factor included "exam characteristics", the second-factor "individual / physical" characteristics, the third factor "technical and environmental" features, while the fourth factor included the "pressure" dimension. Confirmatory factor analysis was not conducted in this scale development process. However, confirmatory factor analysis was conducted for this study. The goodness of fit indices of the scale were chi-square / df = 2.88, RMSEA = .066, GFI = .90, AGFI = .90, CFI = .96, NNFI = .95, SRMR = .058. The Cronbach Alpha reliability coefficient of the scale was found to be .85. The reliability of the scale in this study was found to be .88.

Data Collection Process

Data collection tools were applied online to students who volunteered after obtaining the ethics committee permission from the relevant institution, since universities started distance education due to Covid19. Although more than one scale was employed in the data collection process, due to the low number of items in the scales, the scales were given to the participants at the same time and they were filled in, and it took approximately 10 minutes for the participants to fill out the scales.

Analysis of the Data

The structural equation model was employed to test the relationship between dependent (attitude towards technology and attitude towards e-assessment) and independent (gender, grade level, whether they have their own computers, whether they have continuous connection to the internet, the frequency of using distance education and how often they use the internet) variables. For this purpose, firstly, data cleaning was performed in the data set and the missing-extreme values were extracted. After data cleaning analysis, structural equation modeling analyzes were conducted with a total of 444 students. During the data analysis process, dependent (latent) and independent (observed) variables were determined. In this context, principal components factor analysis was run on the items of the scale, which were set as dependent variables, and thus, the dimensions were determined. To determine the correlation between the verified latent variables and the observed variables, the structural equation model [SEM] was used. In SEM studies, one or more models are tested, and in the analyzes conducted in this context, it is revealed whether the models in question are verified by the data and whether the assumed relationships in the theoretical universe are also present in the data set obtained as a result of empirical observation (Şimşek, 2007). In this connection, a model was developed based on the

theoretical framework and review of the literature. In the structural equation model, various fit indices are used to decide whether the model predicted by the researcher is validated by the collected data. There is no definite rule as to which indexes should be used in studies on this subject. In this study, the indexes suggested by Kline (2011) were used to reveal the correlation between attitude towards e-assessment and attitude towards technology. These are chi-square fit test ((χ2 (df) and p, χ2 (df) / df), root mean square of prediction error (RMSEA (90.00% confidence interval)), comparative fit index (CFI), standardized root means square error (SRMR). A value of χ2 (df) / df of 5.00 shows an acceptable fit, and a 2.00 of a perfect fit. For RMSEA, a value of .10 indicates acceptable fit and a value of .05 indicates perfect fit. The value of .90 for CFI shows an acceptable fit and .95 value shows a perfect fit. For SRMR, .05 value means a perfect fit, and .10 value means acceptable fit (Kline, 2011). The data were analyzed by using SPSS 23.0, Mplus 7 version, and LISREL 8.71 package programs.

RESULTS

In this part, the findings from the analysis of the data are included.

Findings on Examination of Factors Affecting Attitudes Towards E-Assessment by Confirmatory Factor Analysis (MIMIC Model)

The variables predicted before the analysis of the data, the attitude towards technology (ATT) and the e-assessment attitude (EEA) and the characteristics of the exam (CE), which are the e-assessment sub-dimensions, physical properties (PP), technical characteristics (TC) and pressure (P) Correlation analysis was done to evaluate the relationships between the sub-variables. The relationship between the variables was analyzed using the Pearson Product-Moment correlation analysis method. The relationships between the predictor and predicted variables are given in Table 2.

Table 2. Examination of the relationship between variables with Pearson product-moment correlation.

			r		
Variables	**1**	**2**	**3**	**4**	**5**
1. CE	1	.03	.38**	.26**	.06
2. PI		1	.34**	.39**	.06
3. TC			1	.59**	.23**
4. P				1	.25**
5. ATT					1

**p < .01

The analysis of the correlation values presented in Table 2 shows that there is a small positive and statistically insignificant correlation (r= .03, p>.05) between examination characteristics and physical characteristics score. There was a moderate positive and statistically significant correlation between examination characteristics and technical characteristics scores (r=.38, p<.01), a small positive and statistically significant correlation between examination characteristics and pressure subscale scores (r=.26, p<.01), a small positive and statistically significant correlation between examination characteristics and attitude towards technique scores (r=.06, p>.05), and a moderate positive and statistically significant correlation between physical characteristics and technical characteristics scores (r=.34, p<.01). Moderate positive and statistically significant correlations between physical characteristics and pressure sub-dimension scores (r=.39, p<.01), low positive and statistically significant correlations between physical characteristics and attitude towards technique (r=.06, p>. 05), a positive and statistically significant moderate correlation between technical characteristics and pressure sub-dimension (r=.59, p<.01), and a positive and statistically significant low correlation between technical characteristics and attitude towards technology (r=.23, p<.01). There is a positive and statistically significant low level correlation between the pressure sub-dimension and attitude towards technology (r=.25, p<.01).

In the study after analysing the relationship between the dependent and independent variables, the effect on the independent variables such as gender, class level, frequency of using technology, frequency of using distance education and the internet, and the attitude towards technology and e-assessment attitude

variables, which are the dependent variables, was examined by path analysis. The path diagram is shown in Figure 1.

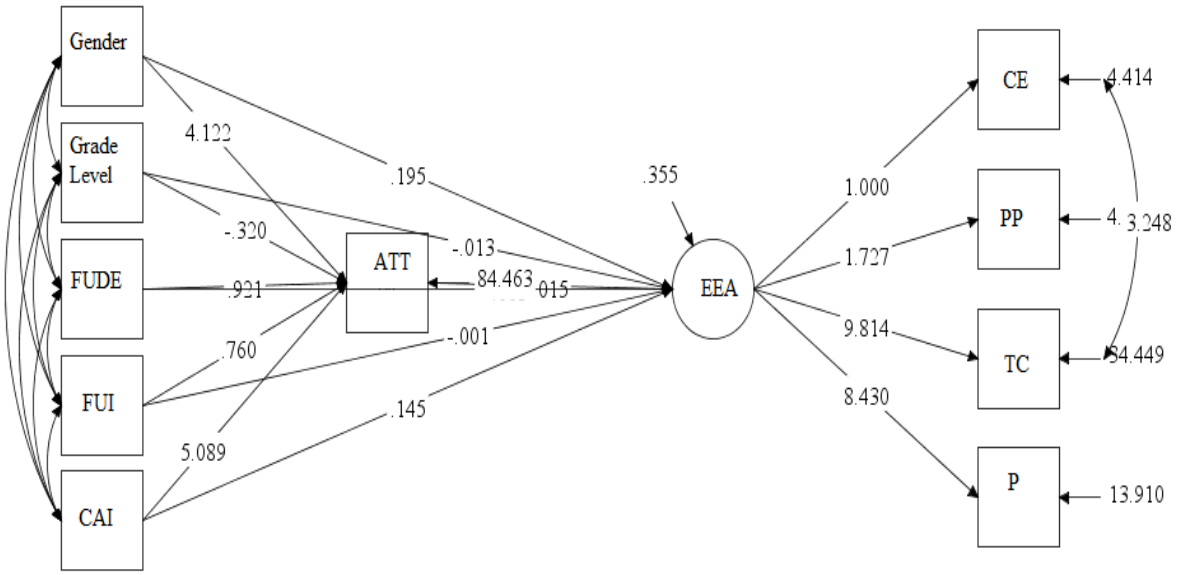

Figure 1. DFA (MIMIC model) diagram of factors affecting attitudes towards e-assessment and using technology.

When the findings in Figure 1 are examined, the CFA (MIMIC model) was used to reveal how the primary school teacher candidates' attitudes towards e-assessment and technology are affected by the variables of gender, class level, frequency of using technology, frequency of using distance education and frequency of using the internet and the relationships between the variables were tried to be determined. In this context, all variables in the tested model were defined as observed variables. First of all, before the analysis of the model, the measurement model was examined with confirmatory factor analysis. The p value for the $\chi 2$ value ($\chi 2$ (727) = 2098.73) was found to be significant ($p<.05$). When the $\chi 2$ value in the model is divided by the degrees of freedom ($\chi 2$ / df =2098.73 / 727= 2.88), it shows that the model fit is acceptable. Considering the size of the sample (450), examining other fit indices will contribute to the evaluation of the model. Accordingly, RMSEA= .050 for the model; CFI = .956; NFI = .919; SRMR= .028 was determined. In this case, it can be said that the ratio of the $\chi 2$ value to the degrees of freedom and the RMSEA value is at an acceptable level, and the CFI and NFI values are at an excellent level. In this direction, the analysis reveals that the model fits well with the data set.

After analyzing the performance index values of the model, we examined the parameters of the model and the parameter estimates of the trajectories defined in the model. In the structural model obtained, statistically significant differences were found between gender and attitude towards technology, frequency of technology use and attitude towards technology (ATT), attitude towards technology and attitude towards e-assessment, gender and attitude towards e-assessment, frequency of technology use and attitude towards e-assessment. However, no statistically significant differences were observed between the other variables. Table 3 presents the parameter estimates, including regression coefficients and t-values obtained from the structural model.

Table 3. Parameter estimations for the structural model.

Path	Unstandardized Regression Coefficients	Standardized Regression Coefficients	t
Gender←ATT	4.122	.165	3.768*
GL←ATT	-.320	-.031	-.696
FUDE ←ATT	.921	.047	1.008
İFU ←ATT	.760	.080	1.658
FUT←ATT	5.089	.308	6.961*
EAA←ATT	.015	.241	4.423*
Gender←EAA	.195	.122	2.292*
GL←EAA	-.013	-.019	-.360
FUDE ←EAA	-.063	-.051	-.910
İFU ←EAA	-.001	-.002	-.037
FUT ←EAA	.145	.138	2.432*

*p <.05

Note: GL: grade level, FUDE: frequency of using distance education, IFU: frequency of using the Internet, FUT: frequency of using technology, (ATT) and (EEA)

The parameter estimates of the resulting model, listed in Table 3, including unstandardized and standardized regression coefficients and t-values, were examined. Total, direct and indirect effects were then analyzed to assess the predictive power of the model parameters. Total, direct and indirect effects are presented in Table 4.

Table 4. Total, direct and indirect effects on the structural model.

Independent Variable	Dependent Variable	Direct	Indirect	Total	Standard Error
Gender	ATT	.16	.....	.16	1.10
GL	ATT	-.03	.....	-.03	.46
FUDE	ATT	-.04	.....	-.04	.91
IFU	ATT	.08	.....	.08	.45
FUT	ATT	.03	.....	.03	.76
EAA	ATT	.24	.....	.24	.005
Gender	EAA	.12	.03	.15	.09
GL	EAA	-.01	-.001	-.1	.03
FUDE	EAA	-.05	.01	.04	.07
IFU	EAA				
FUT	EAA				

Total and direct effect values given in Table 4 are the variables of gender (ß = .16, p <.01), frequency of using technology (ß = .03, p <.01), and attitudes towards technology variables (ß = .24, p <.01) shows that it affects the attitude variable towards e-assessment positively and directly.

Gender (ß = .12, p <.01) shows that it affects the variable of attitude towards e-assessment positively and directly. The frequency of using technology (ß =-.13, p <.01) shows that e-assessment directly affects the attitude variable negatively. When we look at the effect values here, the Eta square (η^2) effect size takes a value ranging from 0.00 to 1.00. A value up to .01 is interpreted as a small effect, a value of .06 as a medium effect, and a value of .14 and above as a large effect size (Büyüköztürk, 2017). The effect of gender on the variable of attitude towards technology was found to be η^2=.22 and it can be said that this has a wide effect.

The effect of frequency of use of technology and attitude towards technology variable was found as η^2=.29 and it can be said that this has a wide effect. The effect of the variable of attitude towards technology on the variable of attitude towards E-assessment was found as η^2=.23 and it can be said that this has a wide effect. The effect of gender on the e-assessment attitude variable was found to be η^2=.24 and it can be said that this has a wide effect. The effect of the variable of frequency of using technology on the variable of attitude towards e-assessment was found to be η^2=.06 and it can be said that this has a moderate effect. It also explains 24% of the total variation of the predictor variables on the predicted variables (R^2 = .24).

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

In this part of the study, relationships between dependent variables (attitude towards technology and e-assessment) and independent variables (gender, class level, having their own computer, having continuous access to the internet, frequency of using distance education and using the internet) used in the research were determined. In determining these relations; Pearson product-moment correlation, path diagram of the factors affecting attitudes, parameter estimates related to the structural model, and conclusions, discussions and suggestions regarding the total, direct and indirect effects of the structural model are included.

In this study, the relationship between the variables was analyzed using Pearson Product Moment Correlation. The results showed that there was a positive and statistically insignificant weak correlation between test characteristics and physical characteristics, a positive and statistically insignificant weak correlation between test characteristics and attitude towards technology, a positive and statistically significant moderate correlation between test characteristics and technical characteristics scores, and a positive and statistically weak correlation between test characteristics and pressure subscale scores. In the study, a moderate positive and statistically significant correlation was found between physical characteristics and technical characteristics and between the scores of physical characteristics and pressure sub-dimensions. In addition, a low level positive and statistically insignificant correlation was observed between physical characteristics and attitude towards technology; a moderate level positive and statistically significant correlation between technical characteristics and pressure sub-dimensions; a low level positive and statistically significant correlation between technical characteristics and attitude towards technology sub-scores; and a low level statistically significant positive correlation between pressure sub-dimensions scores and attitude towards technology scores. Similar to these results, gender, computer and Internet were found to be effective for e-assessment, while school level and distance education were found to be neutral (Başar, et al., 2019; Berkant, 2013; Graham & Jones, 2011; Korkmaz & Altun, 2013; Tselonis, 2008).

The study analyzed the relationship between e-assessment and attitude towards technology and gender, grade level, technology use, distance learning use and frequency of Internet use through path analysis. DFA (MIMIC model) was conducted to reveal how the primary school teacher candidates' attitudes towards e-assessment and their attitudes towards technology were affected by the variables of gender, grade level, frequency of using technology, frequency of using distance education and frequency of using the internet, and the relationships between the variables were determined. When the $\chi 2$ value in the model was divided by the degrees of freedom ($\chi 2$ / df =2098.73 / 727= 2.88), it was observed that the model fit is acceptable. When the size of the sample (450) is considered, it can be said that examining other fit indices will contribute to the evaluation of the model. Accordingly, RMSEA= .050 for the model; CFI = .956; NFI = .919; SRMR=.028 was determined. In this case, it can be said that the ratio of the $\chi 2$ value to the degrees of freedom and the RMSEA value are at an acceptable level, and the CFI and NFI values are at an excellent level. In this direction, the results of the analysis show that the model fits well with the data set. After the goodness of fit index values of the model were examined, the model parameters and parameter estimates of the paths obtained in the model were examined. Accordingly, in the structural model obtained, there were statistical differences between gender and attitude towards technology, frequency of using technology and attitude towards technology, attitude towards

technology and attitude towards e-assessment, gender and attitude towards e-assessment, frequency of using technology and attitudes towards e-assessment. However, it was not statistically significant among other variables. In other studies conducted in parallel with this study, it was shown that the independent variables of gender, distance education and internet were effective on technology attitude, but grade level, computer and internet access did not have any effect (Bahar & Asil, 2018; Boz, 2019; Dolezal, 2011; Erten, 2019). Looking at other studies, it was concluded that the technological competencies of classroom teachers showed a significant difference in favor of male teachers according to the gender variable (Saykal & Uluçınar Sağır, 2021). In the study, it was emphasized that the technological competencies of classroom teachers increased as the time spent in front of the computer increased (Saykal & Uluçınar Sağır, 2021). In their research, İşigüzel (2014) concluded that there is a positive relationship between the time teachers spends in front of the computer and the levels of their technological competencies. It shows that the perspective on technology differs according to gender and male pre-service teachers have a more positive view of technology than female pre-service teachers (Aksoğan & Bulut Özek, 2020). This result of our research supports the studies of Özer (2018).

The study analyzes the parameter estimates of the structural model for the correlation between variables. Accordingly, in the obtained structural model, positive significant difference was observed between gender and attitude towards technology, frequency of using technology and attitude towards technology, attitude towards technology and attitude towards e-assessment, gender and attitude towards e-assessment and frequency of using technology and attitudes towards e-assessment. While the research finding obtained is supported by some research results in the literature (Sırakaya et al., 2014; Wen & Tsai, 2006), it also differs with some research results (Biçer & Korucu, 2020; Dermo, 2009). Furthermore, a significant correlation was found between attitude towards technology and gender and frequency of using distance education, and a non-significant relationship between class level, having one's own computer, the possibility of continuous access to the internet and the frequency of using the internet. Other studies reported similar results (Aktaş et al., 2020; Altun, 2011; Bakioğlu & Çevik, 2020; Gök & Erdoğan, 2008; Gök & Kılıç Çakmak, 2020; Moçoşoğlu & Kaya, 2020; Sorbie, 2015). However, different research findings were found in some studies (Dermo, 2009). It can be said that the results obtained from the parameter guesses and t values obtained according to the structural model are positively significant.

Finally, the total, direct and indirect effects on the structural model were examined regarding the relationship between variables. As a result, a positive and direct effect was found between gender and attitude towards e-assessment. In the study, a negative direct effect was observed between technology use frequency and attitude towards e-assessment. Similar to these results, Yassine (2020) stated that the correlation between attitudes towards technology and access to the Internet and gender is positive. In addition to these results; it was found that students studying in the final year had higher technology perspectives and technology usage skills than first year students (Aksoğan & Bulut Özek, 2020). The reason for this is thought to be that senior students acquire more skills by using technology in their lessons. There is a positive relationship between pre-service teachers' attitudes towards technology and their ability to use technology (Aksoğan & Bulut Özek, 2020). In contrast to this study, Örün et al., (2015) emphasized in their study that class level has no relationship with students' attitudes towards technology.

Studies in which the relationship between e-assessment and attitude towards technology dependent variables and the frequency of continuous use of the internet are examined, and which disagree with this result (Alston, 2017; Boese, 2018; Başar et al., 2019; Karadağ & Yücel, 2020; Karatepe et al., 2020; Jordan, 2014). Furthermore, it has been found that the frequency of using technology has a wide effect on the variable of attitude towards technology, and the variable of attitude towards technology has a wide effect on the variable of e-assessment. It was concluded that the effect of gender on the e-assessment attitude variable was large and the effect of the technology usage frequency variable on the e-assessment attitude variable was moderate. In other studies, it is seen that the independent variables of gender, internet and computer have a large effect on the dependent variables of e-assessment and

attitude towards technology (Başaran et al., 2020; Nikou & Economides, 2018; Ryan, 2016), moderate (Al-Emran & Salloum, 2017; Nikou & Economides, 2018) and small impact studies (Hwang & Chang, 2011; Timmers et al., 2013). It can be stated that this situation determined in the research also explains the total change in independent variables and dependent variables.

The results revealed that the independent variables of gender, class level, having access to the internet, frequency of using distance education, using the internet and having their own computers have a positive effect on the dependent variables of e-assessment and attitude towards technology. In this direction, it can be said that these factors should be taken into account in the use of e-assessment and technology. Considering the factors that affect teacher candidates' attitudes towards technology and e-assessment in primary school teacher training programs, necessary studies should be carried out to increase the skills related to these variables. An important result obtained in the research is that the attitude variable towards technology has a high effect on the e-assessment attitude variable. In this direction, since increasing the attitudes of teacher candidates towards technology will lead to an increase in their attitudes towards e-portfolio, activities that will enable pre-service teachers to develop positive attitudes towards technology should be included in teacher training, and various applications should be included in the lessons by ensuring that technology is adapted to various courses in order to increase these skills of teacher candidates.

The study is limited to primary teacher candidates attending a state university in Ankara. Therefore, different results are likely to occur in different groups. In this direction, a different study can be carried out with branch teachers as well as classroom teacher candidates. Then, the attitudes of these two groups of pre-service teachers can be compared. However, besides this study, different variables can be handled and factors affecting attitudes can be revealed. As a result, in the study, especially technology-related independent variables should be emphasized in order to ensure that the attitude towards e-assessment and technology is at higher levels. Various studies should be conducted on how these variables can be developed during my university and previous school periods, and activities should be carried out to increase these skills in various courses. It is thought that the attitudes of both variables will increase if the skills towards technology and e-assessment are increased through the trainings to be given to teacher candidates. In addition, attitudes towards distance education, academic achievement, motivation towards e-assessment performance level, anxiety variables can be added to the dependent variables discussed in this study and the relationships between them can be examined. It is believed that the study will contribute to the literature since the results obtained by analyzing the independent variables affecting the attitude towards e-assessment and technology together reveal the effect between each other. In addition, the factors that prevent teacher candidates from developing negative attitudes towards e-assessment and technology can be determined, and solutions can be developed in order to have more effective results in the process of distance education.

Limitations

The study was applied only to students in the basic education department of a specific state university. Therefore, the generalizability of the results may be limited. The study was conducted on students from only one Turkish university. Students from different geographical regions or with different cultural backgrounds may have different views. The independent variables considered in the study include only gender, continuous access to the Internet, frequency of technology use and frequency of distance education. In addition to these variables, other factors can be taken into account (e.g. how long teachers have been exposed to technology in initial education, the level of technology teaching in the classroom, etc.). Students' attitudes towards technology and online assessment are based on their own perceptions and experiences. This may not fully reflect students' actual attitudes.

Recommendations

Considering that pre-service teachers have a positive attitude towards technology and e-assessment, more content and application materials should be developed in these areas in education programs. The impact of factors such as gender, Internet access, frequency of technology use and frequency of distance education on student attitudes should be taken into account. Policies and practices should be developed

to ensure equality among these factors in education. Pre-service teachers should be given more comprehensive trainings on technology and e-assessment. These trainings will increase the skills and competencies of pre-service teachers on these issues. Current teachers and pre-service teachers should be provided with continuous training opportunities in technology and e-assessment. This will enable them to keep up with innovations in education and adopt best practices. To support pre-service teachers' positive attitudes towards technology and e-assessment, technological infrastructure and resources in educational institutions should be strengthened. Regular research on pre-service teachers' attitudes towards technology and e-assessment should be conducted and educational policies and practices should be updated in line with the findings. Students' opinions and feedback on this issue should be taken regularly. This would provide valuable information on how technology use and e-assessment in education can be effectively implemented.

Ethics and Conflict of Interest

This study was designed in accordance with ethical rules. Ethical permission was obtained from Hacettepe University on 21.04.2020 with the decision numbered 3583172-300 before it was put into practice in the data collection process. The contributions of the authors to the article are equal. There are no potential conflicts of interest related to the research, writing and/or publication of this article.

REFERENCES

Akdemir, Ö. (2011). Distance education in our higher education. *Journal of Higher Education and Science, 1*(2), 69-71.

Aksoğan, M., & Bulut Özek, M. (2020). Öğretmen adaylarının teknoloji yeterlilikleri ile teknolojiye bakış açısı arasındaki ilişki [The relationship between pre-service teachers' technology competencies and technology perspectives]. *Gümüşhane University Journal of Social Sciences Institute, 11*(2), 301-311. https://doi.org/10.36362/gumus.661961

Aktaş, N., & Çoban Sural, Ü. (2023). Acil uzaktan eğitim sürecinin ilkokuma yazma öğretimine yansımaları: Birinci sınıf öğretmen ve veli deneyimleri [Effects of the emergency distance education process on first literacy teaching: Experiences of first grade teachers and parents]. *Kırşehir Education Faculty Journal (KEFAD), 24*(1), 142-209. https://doi.org/10.29299/kefad.1160758

Aktaş, Ö., Büyüktaş, B., Gülle, M., & Yıldız, M. (2020). Sports science students' attitudes towards distance education during the days of isolation caused by the Covid-19 virus. *Sivas Cumhuriyet University Journal of Sport Sciences, 1*(1),1-9.

Al-Emran, M., & Salloum, S. A. (2017). Students' attitudes towards the use of mobile technologies in e-evaluation**.** *International Journal of Interactive Mobile Technologies (iJIM), 11*(5), 195-202. DOI: 10.3991/ijim.v11i5.6879

Alston, P. O. (2017). *Influential factors in the design and implementation of electronic assessment at a research-led university*. (Unpublished doctoral dissertation). Lancaster University, UK.

Altan, T., & Seferoğlu, S. S. (2010). *Evaluation process in distance education: Contribution of student views to the development of the system*. III. International Computer and Instructional Technologies Symposium, October 07-09, 2009, Trabzon, Karadeniz Teknik University.

Altun, T. (2011). Investigation of primary school students' attitudes towards computers: Trabzon province example. *Turkish Journal of Computer and Mathematics Education, 2*(1), 69-86.

Amiryousefi, M., & Geld, R. (2021). The role of redressing teachers' instructional feedback interventions in EFL learners' motivation and achievement in distance education. *Innovation in Language Learning and Teaching, 15*(1), 13-25. doi:10.1080/17501229.2019.1654482

Anderson, L. W., & Bourke, S. F. (2013). *Assessing affective characteristics in the schools*: Routledge. Anastasi, A. (1982). *Psychological testing* (5th ed.). New York: Macmillan.

Araz, Ü., Aldemir, S., Tunç, B., & Çam, U. (2023). Öğretmenlerin uzaktan eğitime yönelik tutumları ile sanal sınıf yönetimi yeterlikleri arasındaki ilişkinin incelenmesi [Examination of the relationship between teachers' attitudes towards distance education and virtual classroom management qualification]. *Ulusal Eğitim Dergisi, 3(1),* 75–91.

Arslan, R., Bircan, H., & Eleroğlu, H. (2019). Development of attitude scale towards distance education: Cumhuriyet University example. *Sivas Cumhuriyet University Journal of Economic and Administrative Sciences, 20*(2), 1-19.

Arslan, S., & Şendurur, P. (2017). Eğitimde teknoloji entegrasyonunu etkileyen faktörlerdeki değişim [Investigation of changes in factors affecting the technology integration in education]. *Mehmet Akif Ersoy University Journal of Education Faculty, 43,* 25-50.

Aydın, F., & Kara, F. N. (2013). Öğretmen adaylarının teknolojiye yönelik tutumları: Ölçek geliştirme çalışması [pre-service teachers' attitudes toward technology: Scale development study]. *Journal of Turkish Science Education, 10*(4), 103-118.

Bahar, M., & Asil, M. (2018). Attitude towards e-assessment: influence of gender, computer usage and level of education. *Open Learning: The Journal of Open, Distance and e-Learning, 33*(3), 221-237. DOI:10.1080/02680513.2018.1503529

Bahar, M. (2014). Üniversite öğrencileri e-değerlendirme tutum ölçeğinin geliştirilmesi [Development of e-assessment attitude scale for university students]. *e-International Journal of Educational Research, 5*(2), 38-53. https://doi.org/10.19160/e-ijer.13954

Bakioğlu, B., & Çevik, M. (2020). Science teachers' views on distance education during the COVID-19 pandemic. *Turkish Studies, 15*(4), 109-129. https://dx.doi.org/10.7827/TurkishStudies.43502

Başar, M., Arslan, S., Günsel, E., & Akpınar, M. (2019). Pre-service teachers' perception of distance education. *Journal of Multidisciplinary Studies in Education, 3*(2), 14-22.

Başaran, M., Doğan, E., Karaoğlu, E., & Şahin, E. (2020). A study on the effectiveness of distance education, which is the return of the coronavirus (covid-19) pandemic process. *Academia Journal of Educational Research, 5*(2), 368-397.

Bayram, M., Peker, A. T., Aka, S. T., & Vural, M., (2019). Examination of university students' attitudes towards distance education course. *Gaziantep University Journal of Sport Sciences, 4*(3), 330-345.

Berkant, H. G. (2013). Öğretmen adaylarının bilgisayara yönelik tutumlarının ve öz-yeterlik algılarının ve bilgisayar destekli eğitim yapmaya yönelik tutumlarının bazı değişkenler acısından incelenmesi [Investigation of preservice teachers' attitudes and perceived self-efficacies toward computer and their attitudes toward computer supported education in terms of some variables]. *Journal of Instructional Technologies and Teacher Education, 2*(2), 11-22.

Bhalla, J. (2013). Computer use by school teachers in teaching-learning process. *Journal of education and training studies, 1*(2), 174-185.

Biçer, H., & Korucu, A. T. (2020). Adaptation of the scale of attitude towards e-learning into Turkish. *Educational Technology Theory and Practice, 10*(1), 237-256. https://doi.org/10.17943/etku.632178

Bilgiç, H. G. (2022). Reflections on the emergency remote teaching in the pandemic: experiences of pre-service teachers. *Bartın University Journal of Faculty of Education, 11(1),* 248-266. https://doi.org/10.14686/buefad.1055899

Boese, M. (2018). *Student perceptions of e-assessment tools for sign language ınterpretation.* (Unpublished doctoral dissertation). Walden University, ABD.

Boz, A. (2019). *Investigation of pre-service teachers' perceptions of distance education in the context of technology acceptance and use.* (Unpublished master thesis). Necmettin Erbakan University Institute of Educational Sciences.

Büyüköztürk, Ş. (2017). *Sosyal bilimler için veri analizi el kitabı* [Manual of data analysis for social sciences]. Ankara: Pegem Academy.

Cabı, E. (2016). Student perceptions on e-assessment in distance education. *Journal of Higher Education and Science, 6*(1), 94-101. DOI: 10.5961/jhes.2016.146.

Çakır, Ö., Calp, M. H., & Doğan, A. (2015). Uzaktan eğitimde içerik geliştirme süreci: Gazi Üniversitesi Bilişim Enstitüsü örneği [Content development process in distance education: Gazi University Informatics Institute example]. *Cumhuriyet International Journal of Education, 4*(1), 1-20. https://doi.org/10.30703/cije.321359

Çardak, U., & Güler, Ç. (2022). Uzaktan eğitim ve uzaktan öğretmen yetiştirme bağlamında akademisyen uygulama, görüş ve önerileri [Academicians' practices, opinions and suggestions in the context of distance education and distance teacher training]. *Van Yüzüncü Yıl University Faculty of Education Journal, 19*, 323-353. https://doi.org/10.33711/yyuefd.1068111

Ceylan, B., Alpaslan, A., Taş, Ü., & Yilmaz, E. (2023). Uzaktan eğitim sürecinde eğitim materyallerinin sınıf öğretmenleri görüşlerine göre değerlendirilmesi [The evaluation of educational materials according to the opinions of class teachers in the process of distance education]. *Black Sea Journal of Public and Social Science, 6(2),* 63-72. https://doi.org/10.52704/bssocialscience.1265607

Clark, J. T. (2020). *Distance education* (ed. Ernesto Iadanza). Clinical Engineering Handbook. Academic Press.

Dolezal, K. D. (2011). *Motivation and engagment: Student and teacher perceptions.* (Unpublished doctoral dissertation). Wyoming University, ABD.

Dermo, J. (2009). E-assessment and the student learning experience: A survey of student perceptions of e-assessment. *British Journal of Educational Technology, 40*(2), 203-214.

Elçiçek, M. (2022). Uzaktan eğitim engelleri: Bir meta-sentez çalışması [Distance education obstacles: A meta-synthesis study]. *Journal of University Research, 5*(1), 35-45. https://doi.org/10.32329/uad.937271

Ersoy, M., & Gürgen, L. (2021). Eğitim teknolojileri ile ilgili makalelerin incelenmesi [Examination of articles related to educational technologies]. *e-International Journal of Educational Research, 12*(2), 1-16. https://doi.org/10.19160/e-ijer.927830

Erten P. (2019). Generation Z's attitudes towards digital technology. *Gümüşhane University Institute of Social Sciences Electronic Journal, 10*(1), 190-202.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education.* McGraw-Hill.

Graham, C. M., & Jones, N. (2011). Cognitive dissonance theory and distance education: Faculty perceptions on the efficacy of and resistance to distance education. *International Journal of Business, Humanities and Technology*, *1*(2), 212-227.

Güllüpınar, F., Kuzu, A., Dursun, Ö. Ö., Kurt, A. A., & Gültekin, M. (2013). Use of technology in national education and its results: Evaluation of the pilot implementation of the conqueror project from the parents' point of view. *Süleyman Demirel University Faculty of Arts and Sciences Journal of Social Sciences, 30*(30), 195-216.

Gök, B., & Kılıç Çakmak, E. (2020). Perception of distance education by instructors who teach in distance education. *Kastamonu Education Journal, 28*(5), 1915-1931. doi: 10.24106/kefdergi.3914.

Gök, B., & Erdoğan, T. (2008, May). Determination of pre-service elementary teachers' attitudes towards the use of the internet for educational purposes. In *8th International Educational Technology Conference* (p. 6-9).

Hewson, C. (2012). Can online course-based assessment methods be fair and equitable? Relationships between students' preferences and performance within online and offline assessments. *Journal of Computer Assisted Learning, 28*(5), 488-498.

Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational technology research and development, 55*(3), 223-252.

Hwang, G. J. & Chang, H. F. (2011). A formative assessment-based mobile learning approach to improving the learning attitudes and achievements of students. *Computers & Education, 56(4)*, 1023-1031. https://doi.org/10.1016/j.compedu.2010.12.002

İşigüzel, B. (2014). Almanca öğretmen adaylarının teknopedagojik eğitime yönelik yeterlik düzeylerinin incelenmesi [Examining the proficiency levels of German teacher candidates towards technopedagogical education]. *Journal of International Social Research, 7*(34), 768-778.

Jordan, S. (2014). *E-assessment for learning? Exploring the potential of computer-marked assessment and computer-generated feedback, from short-answer questions to assessment analytics.* (Unpublished doctoral dissertation). Eastern Michigan University.

Karabacak, Ş. (2022). *Pandemi sürecinde Eğitim Bilişim Ağı (EBA) aracılığıyla gerçekleştirilen İngilizce öğretiminin niteliği: Öğretmen, öğrenci ve veli görüşleri: (Erzurum ili örneği)* [The quality of English teaching through the Educational Information Metwork (EIN) during the pandemic process: Teachers', students' and parents' opinions: (Erzurum province example)]. (Unpublished master's thesis). Anadolu University.

Karadağ, E., & Yücel, C. (2020). Distance education at universities during the new type of coronavirus pandemic: An evaluation study within the scope of undergraduate students. *Journal of Higher Education, 10*(2), 181-192. doi:10.2399/yod.20.730688

Karatepe, F., Küçükgençay, N., & Peker, B. (2020). How prospective teachers view synchronous distance education? A survey study. *Journal of Social and Humanities Sciences Research, 7*(53), 1262-1274.

Kasap, S (2020). Uzaktan eğitim yoluyla yabanci dil eğitiminde özerk öğrenmenin yeri [The place of autonomous learning in foreign language education through distance education]. *Pandemi ve eğitim* [Pandemic and education]. Ankara: Anı Publishing

Kasap, S. (2021). Mental well-being and foreign language anxiety. *Multicultural Education, 7*(4), 226-2230

Kaya, Z. (2012). *Distance education.* Ankara: Pegem A Publishing.

Kırbaç, M., Kaya, F., & Özkul, R. (2023). Uzaktan eğitim sürecinde eğitim fakültesi öğrencilerinin genel öz-yeterlik düzeylerinin incelenmesi [Examining the general self-efficacy levels of education faculty students in the distance education process]. *E-International Journal of Educational Research, 14*(1), 391-407. https://doi.org/10.19160/e-ijer.1203150

Kline, R. B. (2011). *Convergence of structural equation modeling and multilevel modeling.* Guilford Press.

Kocatürk Kapucu, N., & Uşun, S. (2020). Distance education practices in teaching common compulsory courses in universities. *Journal of Open Education Applications and Research, 6*(1), 8-27.

Kocayiğit, A. & Uşun, S. (2020). Attitudes of teachers working in schools affiliated to the Ministry of National Education towards distance education. *Eurasia Journal of International Studies, 8*(23), 285-299.

Kokoç, M. (2019). *Modeling the relationship between distance education students' engagement levels and smartphone addiction, self-regulation and self-efficacy skills.* (Unpublished doctoral dissertation). Atatürk University Institute of Educational Sciences, Erzurum.

Korkmaz, Ö., & Altun, H. (2013). Mühendislik ve BÖTE öğrencilerinin bilgisayar programlama öğrenmeye dönük tutumları [Engineering and CEIT student's attitude towards learning computer programming]. *International Journal of Social Science, 6*(2), 1169-1185.

Kurbanoğlu, N. İ., & Olcaytürk, M. (2023). Investigation of the exam question types attitude scale for secondary school students: development, validity, and reliability. *Sakarya University Journal of Education, 13(2),* 191-206. doi: https://doi.org/10.19126/suje.1187470.

Lee, K. (2017). Rethinking the accessibility of online higher education: A historical review. *The Internet and Higher Education, 33*(1), 15-23.

M. o. N. E. (2018). *2023 Education vision for strong tomorrows*. MoNE

Moçoşoğlu, B., & Kaya, A. (2020). Examination of teachers' attitudes towards distance education applied due to coronavirus disease (covid-19). *Kahramanmaras Sutcu Imam University Journal of Education, 2*(1), 15-43.

Musurmonov, R., Burkhonov, A., & Musurmonova, M. (2021). Innovative activity-a factor of educational efficiency. *European Journal of Molecular & Clinical Medicine, 8*(3), 1238-1241.

Nikou, S. A., & Economides, A. A. (2018). Mobile-based assessment: A literature review of publications in major referred journals from 2009 to 2018**.** *Computers & Education, 125*, 101-119. https://doi.org/10.101 6/j.compedu.2018.06.006

Orakçıoğlu, E. (2019). *Türkiye'de uzaktan eğitim temalı 2013-2018 yılları arasında yapılan lisansüstü tezlerin incelenmesi* [in Turkish]. (Unpublished master's thesis). Eskişehir Osmangazi University.

Otyakmaz, Ö. (2022). *Uzaktan eğitimde yürütülen sosyal bilgiler derslerine yönelik öğretmen, öğrenci ve veli görüşleri* [Teachers, students and parents' views on social studies courses conducted in distance education]. (Unpublished master's thesis). Zonguldak Bülent Ecevit University.

Örün, Ö., Orhan, D., Dönmez, P., & Kurt, A. A. (2015). Öğretmen adaylarının bireysel yenilikçilik profilleri ve teknoloji tutum düzeyleri arasındaki ilişkinin incelenmesi [Exploring the relationship between individual innovativeness and technology attitude of teacher candidates]. *Trakya University Journal of Education, 5*(1), 65-76.

Özdamli, F. (2017). Attitudes and opinions of special education candidate teachers regarding digital technology. *World Journal on Educational Technology: Current Issues, 9*(4), 191-200. https://doi.org/10.18844/wjet.v9i4.2581

Özer, Z. (2018). An investigation of prospective ELT teachers' attitudes towards using computer technologies in foreign language teaching. *Journal of Language and Linguistic Studies, 14(1),* 328-341.

Paydar, S., & Doğan, A. (2019). Prospective teachers' views on open and distance learning environments. *Education & Technology, 1*(2), 154-162.

Ryan, K. A. (2018). *An ınvestıgatıon of pre-servıce teacher assessment lıteracy and assessment confidence: Measure development and edtpa performance*. (Unpublished doctoral dissertation). Kent State University, ABD.

Saykal, A., & Uluçınar Sağır, Ş. (2021). Sınıf öğretmenlerinin öğretmenlik mesleğine yönelik tutumları ve teknolojik pedagojik alan bilgileri arasındaki ilişkinin incelenmesi [Investigation of the relationship between the attitudes of classroom teachers towards the teaching profession and their technological pedagogical content knowledge]. *Dicle University Ziya Gökalp Faculty of Education Journal, 1*(40), 99-110. http://dx.doi.org/10.14582/DUZGEF.2021.18

Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling* (3rd ed.). New York: Routledge/Taylor & Francis Group.

Seaman, J. E., Allen, I. E., & Seaman, J. (2018). *Grade increase: Tracking distance education in the United States*. Babson Survey Research Group.

Sırakaya, M., Sırakaya Alsancak, D., & Çakmak Kılıç, E. (2015). Investıgation of the level of distance education students' attitude towards online exam. *Kastamonu Education Journal, 23*(1), 87-104.

Sorbie, J. (2015). *Exploring teacher perceptions of blended learning.* (Unpublished doctoral dissertation). Walden University.

Şen Ersoy, N. (2023). Dezavantajlı gruplara dil öğretiminde açık ve uzaktan eğitim: Sistematik bir inceleme [Exploring open and distance education for disadvantaged groups in foreign language teaching: A systematic review]. *RumeliDE Journal of Language and Literature Studies, (Ö13)*, 1242-1253. https://doi.org/10.29000/rumelide.1379343

Şenyurt, Y. S., & Şahin, Ç. (2022). Covid-19 Salgınında uzaktan eğitim sürecinde Web 2.0 araçlarinin kullanimi ile ilgili sınıf öğretmenlerinin görüşleri [Opinions of classroom teachers on the use of Web 2.0 tools in the distance education process in the covid-19 epidemic]. *International Journal of Science and Education, 5*(1), 34-49. DOI:10.47477/ubed.1082738

Şimşek, Ö. F. (2020). *Yapısal eşitlik modellemesine giriş: Temel ilkeler ve LISREL uygulamaları* [Introduction to structural equation modeling: Basic principles and applications of LISREL]. Ankara: Anı Publishing.

Turan, R. (2022). Online history lessons conducted during the emergency remote teaching process in Turkey: A review of teachers' opinions. *International Online Journal of Education and Teaching, 9(4)*, 1875-1899.

Topçu, İ., & Ersoy, M. (2020). Eğitim yönetiminde teknoloji kullanımına ilişkin okul yöneticilerinin görüşleri [School administrators' opinions on the use of technology in educational administration]. *OOPUS International Journal of Society Researches, 15*(10), 4930-4955. https://doi.org/10.26466/opus.652611

Tselonis, C. (2008). *Matching constructed answers for e-assessment.* (Unpublished doctoral dissertation). Manchester University.

Timmers, C. F., van den Broek, J. B., & van den Berg, S. M. (2013). Motivational beliefs, student effort, and feedback behaviour in computer-based formative assessment. *Computers & Education, 60(1)*, 25-31. https://doi.org/10.1016/j.compedu.2012.07.007

Wen, M. L. I., & Tsai, C. (2006). University students' perceptions of and attitudes toward (online) peer assessment, *Higher Education, 51*, 27-44.

Yassine, K. (2020). An advanced authentication scheme for e-evaluation using students behaviors over e-learning platform. *International Journal of Interactive Mobile Technologies (iJIM), 15*(04), 90-111. https://doi.org/10.3991/ijim.v11i5.6879

Yeşil, A., & Balcı Karaboğa, A. (2023). Okul yöneticilerinin covid-19 salgın döneminde uygulanan uzaktan eğitime yönelik yaşantı ve görüşleri [The experiences and opinions of school administrators on distance education applied during the covid-19 pandemic]. *Inonu University Journal of the Faculty of Education, 24*(1), 148-174. https://doi.org/10.17679/inuefd.1142940

Yiğit, M. (2022). *Uzaktan eğitim ile yürütülen Almanca öğretmenliği öğretmenlik uygulaması dersine ilişkin görüşlerin incelenmesi* [Untersuchung der ansichten zum lehrpraktikum mit fernstudium in der deutschlehrerausbildung]. (Unpublished master thesis). Trakya University.

Yildirim, H., Ercemal, H., Yildirim, S. S., Turhan, A., & Bayram, N. (2023). Yaygın eğitim modeli olarak dünyada ve Türkiye'de uzaktan eğitim [Distance education as a formated education model in the world and in Türkiye]. *The Journal of Turk-Islam World Social Studies, 10*(38), 369-386.