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To cite this article:

Yazici Arici, E., Yigit, N.B., & Uyanik Aktulun O. (2023). The effect of web 2.0 supported geometry activities on children's geometry skills. *International Journal of Technology in Education and Science (IJTES)*, 7(4), 454-469. <https://doi.org/10.46328/ijtes.510>

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Article Info

Article History

Received:

14 March 2023

Accepted:

12 September 2023

Keywords

Geometry skills

Web 2.0

Preschool children

Geometry activities

Abstract

The research was carried out to reveal the effect of Web2.0 supported geometry activities on the geometry skills of kindergarten children. The study group of the research consisted of 61-66 months old children with normal development who attended the kindergartens affiliated to the Ministry of National Education in Aydın in the 2022-2023 academic year. A total of 43 children were included in the study. In the study, a quasi-experimental design with pre-test/post-test control group was used to examine the effect of Web2.0 supported geometry activities on children's geometry skills. The data of the study were obtained by using the "Early Geometry Skills Test" developed by Sezer and Güven (2016) to determine the geometry skills of children and whose validity and reliability study was conducted. Web2.0 supported geometry activities were applied to the experimental group for a total of 10 weeks. On the other hand, the mathematics-based Ministry of Education program was applied to the control group. As a result of the research, when the mean scores of the children in the experimental and control groups regarding geometry skills were examined, it was determined that the applied Web2.0 supported geometry activities were effective in favor of the experimental group.

Introduction

Children have the ability to learn mathematics when they are born and they have an important potential in learning mathematics (Charlesworth & Lind, 2007; Ginsburg & Golbeck, 2004; Greenes et al., 2004; Pound, 2006; Schwartz, 2005). Young children begin to acquire mathematical knowledge during their daily life experiences in the natural course of their development (Charlesworth, 2005). Therefore, before starting formal education, children have mathematical knowledge and thoughts (Clements & Sarama, 2009). Studies indicate that the development of children's mathematical experiences and mathematical skills in early childhood is effective in their success in mathematics in the following years (Claessens et al., 2009; Pagani et al., 2010; Ritchie & Bates, 2013; Parks & Wager, 2015; Romano et al., 2010). Moreover, geometry is one of the basic skills among the content standards of mathematics and has an important place in the mathematics education curriculum (Marchis, 2012). Geometry includes shape, size, direction, position, and movement and allows the child to understand and organize the physical world (Copley, 2010). Developing children's geometry skills at an early age plays a fundamental role in the child's future mathematical success (Moss et al., 2015). It has been revealed that children

participating in geometry activities can think more critically and creatively and develop positive attitudes towards mathematics because they find geometry studies fun (Saraçoğlu, 2015). As children's geometric knowledge and geometry skills develop, their logical reasoning skills and ability to solve real-life problems develop (French, 2004; Jones & Mooney, 2003). It is also stated that knowledge of geometric shapes is important for school readiness (Resnick et al., 2016).

The educational programs applied to improve the geometry skills of children in early childhood period are effective in developing their geometry skills and gaining geometric concepts (Almohtadi et al., 2019; Aprilia & Putri, 2020; Casey et al., 2008; Fisher et al., 2013; Fitriana & Windiarti, 2020; Gecü Parmaksız, 2017; Kalenine et al., 2011; Keren & Fridin, 2014; Kesicioğlu, 2011; Öcal & Halmatov, 2021; Şen, 2017; Zaranis, 2012). On the other hand, it is thought that there is still a need for education programs based on different approaches or using different teaching methods to be used in geometry education in the early childhood period. Within the scope of this study, it was aimed to support the geometry skills of preschool children with Web 2.0 supported geometry activities. These activities were created by considering the Van Hiele Geometry Thinking Model. This model is designed to explain how children learn and understand geometry, and it provides a developmental sequence of geometric thinking that children may progress through as they engage in geometric activities. It proposes five levels of geometric thinking: visualization, analysis, abstraction, deduction, and rigor. Visualization is the ability to recognize and distinguish shapes and figures based on their visual properties, such as size, color, and orientation. Analysis is the ability to understand the properties and relationships between shapes and figures, such as congruence, similarity, and symmetry. Abstraction is the ability to use deductive reasoning to generalize about geometric concepts and to recognize the underlying principles and structures that govern them. Deduction is the ability to construct logical arguments and proofs based on geometric axioms and theorems and finally rigor is the ability to understand and appreciate the formal structure and logic of geometry as a mathematical system (Fuys et al., 1988). The model suggests that effective instruction in geometry should be tailored to the child's current level of geometric thinking, and should provide opportunities for exploration, discovery, and communication of geometric ideas (Burger & Shaughnessy, 1986). In line with this model, the current study include Web 2.0 supported activities that involve engaging, interactive, and personalized learning experiences and support children's development in multiple domains to support preschool children's geometry skills.

Web 2.0 supported geometry activities refer to the use of interactive web-based tools and resources to support the teaching and learning of geometry. Web 2.0 technologies are characterized by their user-centered design, interactivity, and social collaboration features. When evaluated in terms of appealing to children's multiple senses, motivating them to their learning processes, and increasing their curiosity and desire, Web 2.0 technologies used as educational materials in activities make a positive contribution to the child's learning process (Girgin, 2020; Erbaş, 2020; Öner, 2020; Akin & Aslan, 2021; Yıldız & Şahin, 2022). Preschoolers are often more engaged in learning activities that are interactive, visually appealing, and multimedia rich. Web 2.0 supported geometry activities can provide these features, capturing preschoolers' attention and motivating them to learn (Girgin, 2020). Web 2.0 supported geometry activities can help preschoolers develop spatial thinking skills, such as recognizing shapes, sizes, orientations, and positions. These skills are important to develop as they form the foundation for more advanced geometry skills later on (Erbaş, 2020). These activities can also provide

preschoolers with opportunities to practice problem-solving skills. For example, they can explore geometric puzzles and tangrams, which require them to use their spatial reasoning to find solutions (Öner, 2020). They are also customized to meet the individual needs and interests of preschoolers. For example, they can work at their own pace and choose activities that align with their learning goals (Akın & Aslan, 2021). Using Web 2.0 supported geometry activities can help preschoolers develop important technology skills such as navigating digital platforms, using basic software applications, and understanding basic coding concepts (Yıldız & Şahin, 2022).

Considering the need for educational programs based on different approaches or using different teaching methods to be used in geometry education in early childhood and the positive effects of Web 2.0 supported geometry activities, the current study, which was conducted to reveal the effect of Web 2.0 supported geometry activities on the geometry skills of 61-66 months old children attending kindergarten, is important. For this purpose, answers to the following questions were sought:

- Is there a significant difference between the Early Geometry Skills Test pre-test mean scores of the experimental and control group children?
- Is there a significant difference between the Early Geometry Skills Test pre-test/post-test mean scores of the children in the experimental group?
- Is there a significant difference between the Early Geometry Skills Test pre-test/post-test mean scores of the children in the control group?
- Is there a significant difference between the Early Geometry Skills Test post-test mean scores of the experimental and control group children?
- Is there a significant difference in the post-test scores of the experimental and control groups when the effect of the pre-test scores is removed?

Method

Research Design

In the research, a quasi-experimental design with pre-test/post-test control group was used. In this study, two of the ready-made groups were matched in terms of geometry skills without using random assignment. The purpose of this is to test the cause-effect relationship between the variables (Büyüköztürk et al., 2012)

The dependent variable in the design of the study is the early geometry skills of 61-66 months old children attending a preschool education institution. The independent variable is Web2.0 supported geometry activities and its effects were examined on children's early geometry skills.

Study Group

The population of the research consists of 61-66 month-old children with typical development who attend kindergartens affiliated to the Ministry of National Education in Aydın/Türkiye in the 2022-2023 academic year. The study group of the research consists of randomly selected children from the population who attend the kindergarten affiliated to the Ministry of National Education in Aydın and who have not received Web2.0 supported geometry education before. In the study group, there are a total of 40 children, including the

experimental (n: 20) and control (n: 20) groups.

Data Collection Tools

General Information Form and Early Geometry Skill Test (EGST) were used as data collection tools in the research.

General Information Form

It was prepared by the researchers to determine the demographic characteristics of 61-66 months old children and their families. The form includes questions about the child's age, gender, birth order, age of the parents, education level of the parents, and the profession of the parents.

Early Geometry Skill Test

The content validity for each item in the Early Geometry Skills Test (EGST), which was developed by Sezer and Güven (2016) to be used in determining the geometric thinking skills of children aged 5-7 years, is .65. The Early Number Test and the Frostig Visual Perception Test were used for the criterion validity of the EGST for children aged 5-7 years. The KR20 coefficient for the total reliability coefficient of the test is .853. The Pearson Correlation coefficient between the two halves of the test is .697. The Cronbach's Alpha value for the first half of the test is .764 and for the second half is .856. The test-retest results of the test were .898 for the Pearson Correlation coefficient. As a result of the findings, it was concluded that the test was valid and reliable in measuring the geometry skills of children aged 5-7 years.

The EGST consists of 42 items and the scoring of the items is structured on true-false. While scoring, M4 (total eight points), M5 (total eight points), M6 (total eight points), M7 (total six points), M39 (total four points) are evaluated according to the evaluation rubric and total points are evaluated. For other items, the correct answer is scored as "1" and the wrong answer as "0". In the content of the test, there are questions based on measuring the skills of choosing a shape, knowing shape feature (edge and corner), drawing shape, rotating shapes in mind, creating a new shape by combining or separating shapes, continuing the pattern, taking perspective, building with blocks, recognizing three-dimensional objects, and estimating a surface of a three-dimensional object. The application time of EGST, which is applied one-on-one with children, varies between 30-45 minutes (Sezer & Güven, 2016).

Web 2.0 Supported Geometry Activities

Web 2.0 supported geometry activities are based on supporting the geometry skills of 61-66 months old children. The activities aim to support children's geometry skills through their abilities such as recognizing shapes, counting, telling the features of shapes, matching, comparing, creating patterns, developing vocabulary, moving in rhythm, and waiting their turn.

Considering the elements of Web 2.0 supported geometry activities, the Early Childhood Education Program (2013) for 36-72 months old children implemented by the Ministry of National Education was examined and related objectives and developmental indicators were selected. While determining the objectives and developmental indicators, all development areas were tried to be supported in line with the educational needs of the children. Web2.0 supported geometry activities prepared and applied for the study have the following features.

- Activities mainly consist of mathematics activities, but they are integrated with different activity types (music, art, drama, play, science, etc.).
- Objectives and developmental indicators are handled on the basis of the spirality principle of the program. Objectives and developmental indicators are included in more than one activity and children are given the opportunity to do it again.
- All activities are ranked from easy to difficult and they are play-centered.
- The activities are created by considering the stages of the Van Hiele Geometry Thinking Model: visualization, analysis, abstraction, deduction, and rigor. In this research, the stages of visualization and analysis, which are thought to include the preschool and primary school period (Fuys et al., 1988), are included. It consists of a total of 30 unique activities that include these stages.
- All of the activities are supported by Web2.0 supported educational tools. Applications prepared with at least three web 2.0 tools, from simple to difficult, are included in the activities. These applications can be accessed free of charge on the web such as 2D Shape Games for Kids and 3D Shape Games for Kids.
- The activities are planned to be carried out for 10 weeks, three days a week, for approximately 45-50 minutes. In the experimental group, primarily the activities related to geometric shapes are carried out with three-dimensional materials. Then, applications supported by Web 2.0 tools prepared in accordance with each activity are included. The applications are carried out through the smart board, the teacher's computer, and the tablet in the classroom. The children worked on the applications individually or as a group in three digital tools in the classroom environment.
- Parent involvement activities are prepared in accordance with the nature of the activities and the activities are supported with digital content. The web addresses of the activities supported by web 2.0 tools, prepared in accordance with the geometry activities made with three-dimensional materials in the classroom, are shared with the parents, and the children were allowed to complete these activities individually via computers, tablets, or smartphones at home.

After the preparation phase of Web2.0 supported geometry activities is completed, the program is presented to the expert opinion. In line with the feedback from the experts, the activities are finalized and made ready for the main application.

Data Collection

Ethics committee approval was obtained for the research by Afyon Kocatepe University Social and Human Sciences Scientific Research and Publication Ethics Committee (Decision: 2023/83). The research data were collected in Aydın in February-May of the 2022-2023 academic year. Before the Web2.0 supported geometry activities were applied, EGST was applied to the children in the experimental and control groups as a pre-test.

After the pre-tests were applied, Web2.0 supported geometry activities were applied to the children in the experimental group. The children in the control group continued their education within the scope of the Early Childhood Education Program (2013) of the Ministry of National Education. After applying Web2.0 supported geometry activities to the children in the experimental group, EGST was applied to the children in the experimental and control groups as a post-test.

Data Analysis

In the research, the data collected with the General Information Form and EGST were transferred to the computer environment and evaluated with the SPSS 22.0 program. Whether the score distributions obtained from the experimental and control groups showed normal distribution was checked by the Shapiro-Wilk test and examining the kurtosis skewness coefficients (Razali & Wah, 2011; Yap & Sim, 2011). The fact that the values obtained when the kurtosis and skewness coefficients are divided by their own standard errors are in the range of +1.5 and -1.5 indicate that the data provides the assumption of conformity to the normal distribution and that parametric tests are applicable (Tabachnick & Fidell, 2013). When the distribution of experimental and control group pre-test, experimental group pre-test-post-test, control group pre-test-post-test score distributions and experimental and control group post-test scores were analyzed, it was determined that the data showed a normal distribution in each group. For this reason, parametric tests were used in the analysis of the data.

The significance of the difference between the mean scores obtained from the tests in the two-group comparisons was made with the independent samples t test, and the comparisons between the two spouses in the dependent group were made with the paired sample t test (Büyüköztürk, 2009; Gren & Salkind, 2005). The statistical significance value was accepted as 0.05 in all analyzes. Cohen's d formula was calculated for the effect size measurements calculated according to the difference between the group means (Özsoy & Özsoy, 2013). It is stated that the effect size can be defined as weak if the Cohen's d value is less than 0.2, medium if it is 0.5, and strong if it is greater than 0.8 (Kılıç, 2014).

In addition, ANCOVA was conducted to determine whether the difference between the post-test scores of the experimental and control groups after the experimental procedure was dependent on the pre-test scores. ANCOVA is used when groups differ at baseline to control for these differences. The usual way to do ANCOVA is to use the post-test score as the dependent variable and the pre-test score as the covariate. ANCOVA is an excellent method for comparing changes between groups when groups are randomly assigned (Jamieson, 2004). In short, the aim is to extract the changes originating from the co-variable from the post-test scores, which are accepted as the dependent variable, and then reveal whether the change in the dependent variable is due to the independent variable (Punch, 2005). In the analysis of the data, the level of significance was taken as $p < .05$.

Results

The findings obtained as a result of the statistical analyzes made for the resolution of the research problems are presented below by considering them within the scope of each sub-problem.

1. Is there a significant difference between the Early Geometry Skills Test pre-test mean scores of the experimental and control group children?

The distribution of the scores of the experimental and control group children from the pre-test was analyzed using the Shapiro–Wilk test, and it was observed that the data showed a normal distribution (Experiment $p=.128$; Control $p=.706$). Accordingly, t-test was applied to independent groups in order to analyze whether the pre-test mean scores of the control and experimental groups were statistically different from each other. The results are presented in Table 1.

Table 1. Independent Sample t Test Results Regarding the Comparison of the Pre-Test Scores of the Control and Experimental Groups

Groups	N	Mean	Standard deviation	t	p
Experimental	20	34.50	6.94	-.160	.874
Control	20	34.85	7.80		

$p>0.05$

When Table 1 is examined, it is seen that there is no statistically significant difference between the pre-test mean scores obtained from the Early Geometry Skills Test of the children in the experimental and control groups ($t=-.160$ $p>0.05$). According to this result, it can be said that the children in the experimental and control groups came from the same population before the Web 2.0 supported geometry activities were applied. In other words, it can be thought that the children in the experimental and control groups are similar in terms of measured characteristics.

2. Is there a significant difference between the Early Geometry Skills Test pre-test/post-test mean scores of the children in the experimental group?

The scores of the children in the experimental group from the pre-test and post-test were compared. The distribution of the pre-test and post-test scores of the children in the experimental group was analyzed with the Shapiro–Wilk test, and it was determined that the data showed normal distribution (pre-experiment $p=.128$, post-experiment $p=.101$). Whether the pre-test and post-test mean scores of the children in the experimental group were statistically different from each other were analyzed with paired sample t test. The results are presented in Table 2.

Table 2. Paired Samples t Test Results Regarding the Comparison of Pre-Test and Post-Test Scores of the Experimental Group

EGST	N	Mean	Standard deviation	t	p
Pre-test	20	34.50	5.88	-17.084	.000
Post-test	20	49.30	6.25		

According to Table 2, it was determined that there was a significant difference between the pre-test and post-test mean scores of the experimental group. It is seen that the difference between the mean scores is quite high ($t=17,084$ $p<.05$). In addition, when the effect size value of the difference was calculated with Cohen's d statistics, the Cohen d value was found to be 2.71 and the effect size was 0.8, which was extremely high (Cohen, 1992). These results show that the Web 2.0 supported geometry activities applied in the experimental group have a strong effect on the geometry skill level of the children.

3. Is there a significant difference between the Early Geometry Skills Test pre-test/post-test mean scores of the children in the control group?

The scores of the children in the control group from the pre-test and post-test were compared. The distribution of the pre-test and post-test scores of the children in the control group was analyzed with the Shapiro–Wilk test, and it was determined that the data showed normal distribution (Control pre- $p=.706$, Control post- $p=.356$). Whether the pre-test and post-test mean scores of the children in the control group were statistically different from each other were analyzed with the paired samples t test. The results are shown in Table 3.

Table 3. Paired Samples t Test Results Regarding the Comparison of Pre-Test and Post-Test Scores of the Control Group

EGST	N	Mean	Standard deviation	t	p
Pre-test	20	34.85	7.80	-1.675	.110
Post-test	20	35.40	7.28		

When Table 3 was examined, it was determined that there was no significant difference between the pre-test and post-test mean scores of the control group ($t= -1.675$ $p>0.05$). This situation can be interpreted as the methods, techniques and materials used in educational activities based on the Ministry of National Education Early Childhood Education Program applied to the control group were not designed to fully support early geometry skills.

4. Is there a significant difference between the Early Geometry Skills Test post-test mean scores of the children in the experimental and control groups?

The distribution of the scores of the experimental and control group children from the post-test was analyzed using the Shapiro–Wilk test, and it was observed that the data showed a normal distribution (Experiment $p=.101$; Control $p=.356$). In the study, independent sample t test was applied to determine whether there was a difference between the post-test scores of the experimental and control groups, which did not have a significant difference at the beginning, after the experimental procedure. The analysis results are shown in Table 4.

According to the independent sample t test results in Table 4, it is seen that there is a significant difference between the post-test mean scores of the groups in favor of the experimental group ($t=6.475$ $p<.05$). According to this

result, it can be thought that Web 2.0 supported geometry activities revealed a significant difference in children's early geometry skills compared to the control group, which did not apply any operation. Cohen's d formula was used to determine the effect size of the difference (Cohen, 1988). The Cohen's d value was 2.14 and the effect size was 0.7, which was well above the middle. This result shows that the statistically significant difference between the post-test mean scores of the experimental and control groups has an effect size close to high.

Table 4. Independent Sample t Test Results Regarding the Comparison of the Post-Test Scores of the Control and Experimental Groups

Groups	N	Mean	Standard deviation	t	p
Experimental	20	49.30	6.25	6.475	.000
Control	20	35.40	7.28		

p<0.05

5. Is there a significant difference in the post-test scores of the experimental and control groups when the effect of the pre-test scores is removed?

In order to determine whether the difference between the post-test scores of the groups was significant or not, covariance analysis was performed by controlling the pre-test scores. In the analysis, the post-test scores were accepted as the dependent variable, the group constant variable and the pre-test scores as the covariate, and the results are shown in Table 5.

Table 5. Results of Covariance Analysis by Controlling the Pre-test Scores

Source	Type III Sum of Squares	df	Mean Square	F	p
Group	2018.503	1	2018.503	244.917	.000
Error	304.938	37	8.242		

When Table 5 was examined, it was determined that there was a significant difference between the post-test scores of the children according to the group variable ($F_{1-37}=244.917$; $p=0.000$). According to this result, when the Early Geometry Skills Test pre-test scores of the children were controlled, it was concluded that there was a significant difference between the post-test scores in favor of the experimental group. This result shows that the experimental procedure made a significant difference.

Discussion

The fact that the concepts of geometry have an indispensable importance in the lives of individuals, including science and art, throughout the history of humanity (Van De Walle et al. 2013) emphasizes the development of concepts and skills related to geometry as of pre-school period. Since geometry is built on abstract concepts and relationships, it is necessary to use web 2.0 tools, which will provide a high level of visual and auditory diversity

and provide a rich learning environment through animation and simulation, especially in education with children in the preoperational period (Clements, 2002; Hacısalihoğlu Karadeniz & Akar, 2014). Therefore, these technologies bring forward the implementation and evaluation of educational programs supported by Web 2.0 tools that aim to develop children's geometry skills from the preschool period. In this study, in which the effects of Web 2.0 supported geometry activities on the geometry skills of 61-66 months old children attending kindergarten were examined, it was determined that there was a significant difference between the pretest and posttest mean scores of the experimental group, and the difference between the mean scores was quite high ($p < .05$). The Cohen d value of the difference was 2.71 and the effect size was 0.8. There was no significant difference between the pretest and posttest mean scores of the control group ($p > .05$). It is seen that there is a significant difference in favor of the experimental group between the post-test mean scores of the experimental and control groups ($p < .05$). The Cohen d value of the difference was 2.14 and the effect size was 0.7, which was well above the median. In addition, in the covariance analysis performed by controlling the pre-test scores in order to determine whether the difference between the groups' post-test scores was significant or not, it was determined that there was a significant difference between the post-test scores of the children according to the group variable ($p = 0.000$). These results show that the methods, techniques, and materials used in the educational activities based on the Early Childhood Education Program (2013) of the Ministry of National Education applied to the control group were not designed to fully support early geometry skills, and that the "Web2.0 supported geometry activities" applied in the experimental group had a strong effect on the geometry skill level of the children.

The use of technology in education facilitates the acquisition of mathematical knowledge and skills by supporting children's learning (Hohenwarter et al., 2008). It has been determined in studies that the use of technology in mathematics education has a positive effect on motivation (Lopez-Morteo & Lopez, 2007; Nordin et al., 2010), memorability (Pilli, 2008), and success (Dikovic, 2009; Li & Ma, 2010; Önal & Göloğlu Demir, 2013). In the studies on the use of Web 2.0 tools in geometry education, Cantürk Gürhan and Açıkan (2016) analyzed 41 studies in which the effect of using dynamic geometry software in education on geometry success was evaluated by meta-analysis, it was found that the use of dynamic geometry software increased success in geometry education compared to traditional teaching and had a strong effect. Similarly, Sergeant and Deniz (2022) analyzed 98 studies conducted in Turkey between 2000 and 2016 with meta-analysis and expressed the positive effect of technology-supported education on geometry success. İçel (2011) and Sarı (2021) determined that Geogebra software had a positive effect on 8th and 7th grade geometry learning and success, while Orçanlı (2015) determined that computer aided geometry teaching had a positive effect on 7th grade geometry success. Although the research have been carried out mainly at the upper education levels, it has been shown that computer-assisted education in the pre-school education period provides an increase in the spatial perception, geometric thinking, and skills of the children (Clements 1987; 2002). In this regard, Kacar and Doğan (2007) compared the effectiveness of computer-aided education and traditional education methods in teaching 6-year-old children the concepts of number and shape. It has been determined that the group that received education with the computer-assisted education method was more successful than the group that received the education with the traditional education method. Similarly, Zaranis and Synodi (2017) evaluated the effectiveness of computer-assisted teaching in preschool geometry education by comparing it with the interactionist approach and traditional teaching methods. In the study, the first experimental group was given computer-aided education based on the Van Hiele model, and the second

experimental group was given an interactive approach based on geometric shapes without using a computer. In the control group, the Early Childhood Education Program (2013) of the Ministry of National Education was applied. The results of the study revealed that the educational model in which computer technologies are used, and the interactive teaching approach contribute significantly more to the geometry development of preschool children compared to other traditional methods. The results of the research in the literature are similar to the strong effect of Web 2.0 supported geometry activities on the geometry skill level of children in this study.

Although the effectiveness of computer-assisted education has been demonstrated in studies, the first thing to consider at this point is to support the concept with a computer after children learn the concept (Clements 1987, Clements 2002). For this reason, in Web 2.0 supported geometry activities, activities related to geometric shapes and digital contents related to activities were created by considering the levels of Van Hiele Geometry Thinking Model. Activities were carried out with three-dimensional materials that children actively participated in, and then applications supported by web 2.0 tools prepared in accordance with each activity were included. It can be said that supporting the concept with Web 2.0 tools, after the first experience of the geometric concept, has an effect on the development of children's geometry skills because it enriches the educational environment, visualizes the concepts, individualizes the education, allows children to learn in accordance with their own perception and learning speed, to understand the concepts more easily, and to learn in depth by allowing more examples to be solved.

Conclusion

The research was carried out to reveal the effect of Web2.0 supported geometry activities on the geometry skills of kindergarten children. As a result of the research, when the mean scores of the children in the experimental and control groups regarding geometry skills were examined, it was determined that the applied Web2.0 supported geometry activities were effective in favor of the experimental group. As a result of this study, which was limited to the number of children in the study group and Web 2.0 supported geometry activities, it was determined that Web 2.0 supported geometry activities were effective in supporting children's geometry skills. In this context, the following recommendations can be made. In order to test the effectiveness of Web 2.0 supported geometry activities, pilot schools can be selected so that a larger sample group can benefit from this training and the results can be tested. In order for teachers to have sufficient education and knowledge to plan and implement Web 2.0 supported educational activities, it can be ensured that they are informed by in-service seminars at regular intervals and encouraged to use technology. Studies can be carried out on the adaptation of Web 2.0 supported geometry activities to the Early Childhood Education Program (2013) of the Ministry of National Education. In line with the principles and characteristics of Web 2.0 supported geometry activities, interdisciplinary studies can be conducted based on the strong relationship between cognitive skills.

Notes

This paper was presented as an oral presentation at ICEMST 2023 conference.

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