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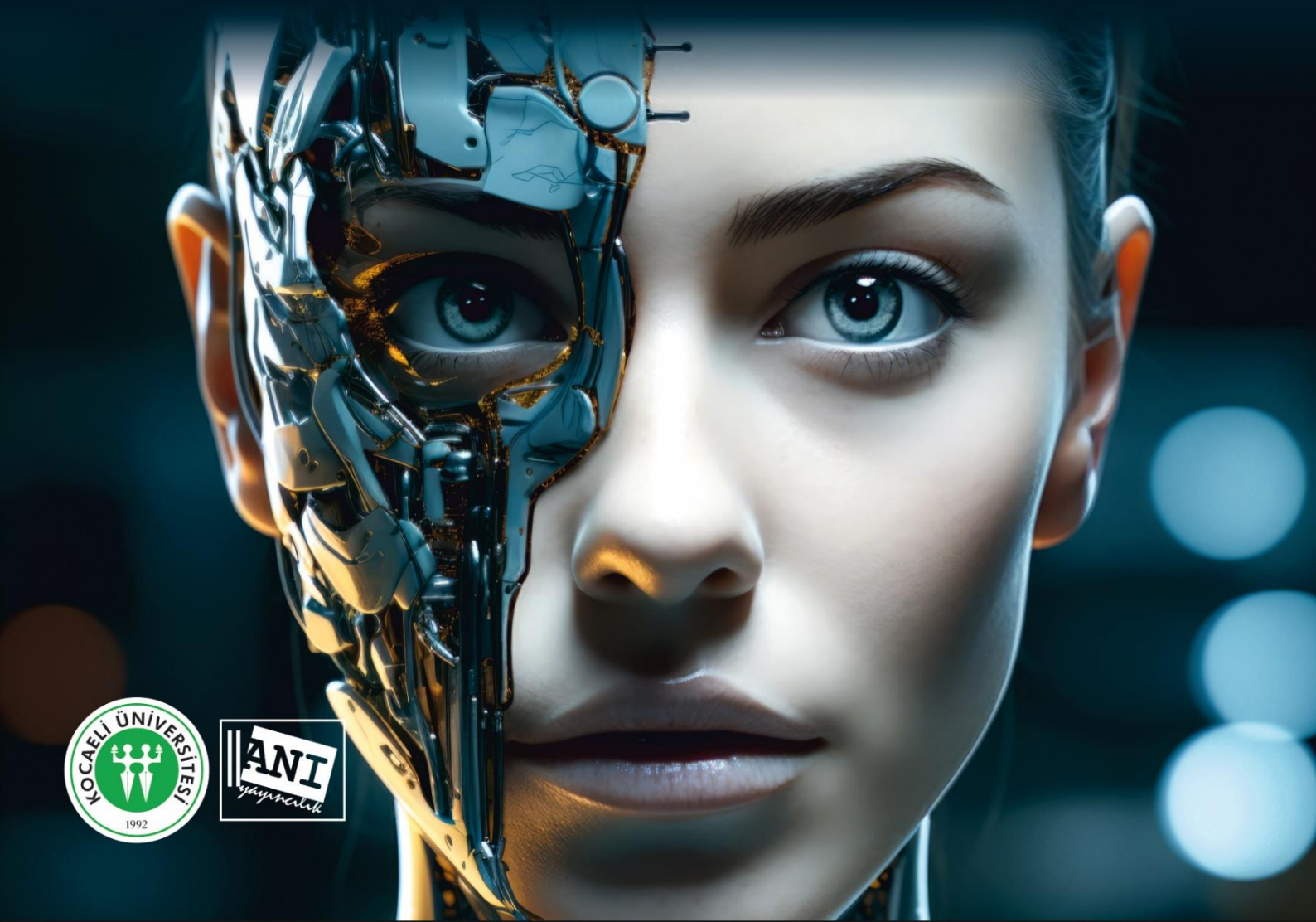

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Main Theme

"Designing the Future: Changing Paradigms and Transhumanism with Artificial Intelligence in Education"

Sub-Themes

- Academic freedom, autonomy, and social responsibility in education
- Artificial intelligence and educational applications
- Augmented reality applications
- Barriers to learning
- Blended learning
- Computer-assisted measurement and evaluation
- Core skill sets for students and teachers
- Design of school buildings in the future
- Designing and delivering a digital strategy
- Digital competence
- Digital parenting
- Distance Education
- Earthquake Education
- Post Earthquake Trauma Training
- Earthquake and Effective Psychosocial Intervention Methods
- Earthquake and Trauma
- The Impact of Earthquakes on School Staff
- Education and society
- Education for healthy living and healthy communities
- Education for a sustainable life
- Education in the digital age: Primary, secondary, high school, higher education, and application examples
- Educational leadership in the digital age
- Effects of regional differences on education
- Equity, Diversity, and Inclusion Related to Marginalized Groups
- Emergency Management at Schools
- Evidence-Based School Counseling Services for Refugees and Marginalized Groups
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This book has been compiled with contributions from 61 authors representing 35 different universities in Turkiye, the United States, and Iran, as well as Turkiye's Ministry of National Education. Among the contributors, there are 51 authors from 31 universities 6 authors from education institutions in Turkey, 3 authors from 2 universities in the United States, and 1 author from a university in Iran.

CONTENTS

The Effect of Gametics Game Program on Visual Perception and Attention Skills: An Experimental Study on Third-Grade Students

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Abstract

The objective of this study is to ascertain the impact of the Gametics Game Program on the visual perception and attention levels of third-grade primary school students. The participants in this study were third-grade students enrolled in primary school in Kocaeli. This study employed a pretest-posttest control group experimental design. The experimental group comprised 45 students, 19 girls and 26 boys, while the control group consisted of 45 students, 21 girls and 24 boys. The results of the analysis indicated a statistically significant difference between the visual perception and attention post-test scores of the two groups, with the experimental group exhibiting superior performance.

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Keywords*: Primary education, Mind games, Intelligence games, Cognitive skills*

Introduction

Cognitive development is the process by which mental activities that enable individuals to understand and learn the world around them from infancy to adulthood become more complex and effective. (Senemoğlu, 2004). Cognitive development includes learning, understanding, paying attention, perception, memory, problem-solving, reasoning, and creativity skills. Cognitive development is also closely related to other areas of development, including language and communication, motor, and social-emotional adaptation skills (Dunlap, 2009).

Basic cognitive skills include attention, focus, memory, separation, and integration skills, while higher-order thinking skills include decision making, processing speed, problem solving, emotional regulation, and reasoning and logic skills. Activities and games prepared to base these skills are prepared in a spiral manner on 6 game themes. These game areas are: (1) Reasoning activities and games: These types of games can also be thought of as gamified forms of logical and arithmetic problems. In these games, the clues given are evaluated and the result is reached by making logical inferences. In mind games, individuals benefit from abstract thinking features such as analogy, deduction, induction, three-dimensional thinking, and reasoning skills. It is also known that teaching mind games makes positive contributions to individuals' social-emotional development as well as skills such as analysis, synthesis, and establishing cause-effect relationships (Devecioğlu & Karadağ, 2014). (2) Verbal activities and games: Games in the field of verbal skills provide children with vocabulary and various verbal stimuli that they can associate with, thus giving them the opportunity to use words effectively in expressing their feelings and thoughts. In addition, in games with verbal content, children can develop skills such as discovering similarities and differences between words, understanding what they read, and interpreting what they see. (3) Geometric and mechanical activities and games: Games in these areas, which are based on the development of spatial skills, provide the development of the ability to visualize geometric shapes and objects in the mind, rotate them, and transform two-dimensional shapes into three-dimensional ones. These games, which require high concentration, are extremely important for the development of high-level cognitive skills such as decision making, processing speed, problem solving, emotional regulation, and reasoning and logic. Studies have shown that tablet and computer collaborative geometric and mechanical games improve students' ability to understand spatial shapes and rotate them in their minds (Lin, 2011; Spencer, 2008). (4) Memory activities and games: Memory games are a type of intelligence game that uses visual or verbal memory as well as neurological recall; cognitive reasoning, and estimation skills; and may be played individually, mutually, or as a group game. Memory games can be played for different purposes and in different ways, depending on the needs of the group playing the game. For example, individuals of all age groups can play this type of game to have fun, while it is also known that individuals over a certain age use it to keep their memory skills alive or to support people who have lost or are about to lose their mental health to regain their mental health (Evans

& Wilson, 1992). (5) Strategy activities and games: Strategy games are defined as “the art of organizing and providing unity of activities to achieve a goal.” Strategic thinking, which is used to define the rational behavior of two players trying to gain an advantage over the opponent, is an important way of thinking that is needed in almost every field today. (6) Intelligence games: These are games where the solution is not clear at the beginning and the player tries to reach a conclusion using clues. These games are games that contribute to the emergence and development of executive function skills.

Strategy and Intelligence games were included in the system for the first time as an elective course under the name of "Mind / Intelligence Games" in the 2012-2013 academic year. Since then, it has been implemented as a course and club activity in many schools in Turkey. Gametics is a platform that programs all these activities, prepares the infrastructure, and follows the development of the participants. The Gametics Program is designed to enhance cognitive functioning by engaging in rigorous exercises that target both fundamental cognitive abilities and advanced cognitive processes, such as executive functions, in alignment with the age and developmental stage of the participants. By doing so, the program aims to facilitate the growth of cognitive abilities, including attention, memory, concentration, and processing speed. In line with these goals, it aims to contribute to the development and support of academic performance. In line with this purpose, the activities will be gamified. Considering the contribution of play, which is seen as a rehearsal for daily life, to all areas of development, it is clear that solving various problems through play, especially by being exposed to different stimuli in terms of cognitive development, will contribute to the cognitive development of children (Akbaba et al., 2003; Yörükoğlu, 1989).

The objective of this study is to ascertain the impact of the Gametics on the visual perception and attention levels of third-grade primary school students.

Does the pretest-posttest comparison of the Frankfurter Attention Test results for the participants yield a significant difference?

Does the pre-test and post-test comparison of the Frostig visual perception test subtest and total scores yield statistically significant results?

Method

Research Design

This study employed a pretest-posttest control group experimental design. For the purposes of the research, an experimental and a control group comprising third-grade primary school students were constituted. The Gametics was implemented for the experimental group, but not for the control group. Pretests and posttests were conducted on both the experimental group and control group to assess visual perception and attention levels prior to and following the intervention. This research design enabled a comparison between the groups to ascertain the impact of the Gametics on the visual perception and attention of the students. The discrepancy between the experimental group and the control group was examined to elucidate the influence of the program.

Research Sample

The participants of the study were third-grade students studying at primary school in Kocaeli. There were 45 students in the experimental group, 19 girls and 26 boys, and 45 students in the control group, 21 girls and 24 boys. The participants were selected to evaluate the impact of the Gametics on visual perception and attention levels and were divided into groups in accordance with the pretest-posttest control group experimental design of the study. The pretest analyses conducted between the groups revealed no statistically significant difference between the pretest scores of the visual perception test and the attention test. This shows that the starting levels of the groups were equal (Tables 1 and 2).

Table 1

The Results of the T-Test for the Pretest Mean Scores of the Frankfurter Attention Test

	Groups	N	X	Sd	df	t	p
Pretest	Experimantal	45	42.68	5.01	44	1.54	.13
	Control	45	41.66	5.94			

Table 2

The Results of the T-Test for the Pretest Mean Scores of the Frostig Visual Perception

	Groups	N	X	Sd	df	t	p
Pretest	Experimantal	45	59.22	8.47	44	1.15	.25
	Control	45	58.24	7.59			

Research Instrument and Procedure

In this section, information will be given about the tests used to measure the visual perception and attention levels used in the study and the application process of the Gametics Game Program. The Frostig Visual Perception Test was employed for the purpose of evaluating the subject's level of visual perception, while the FTF-K Attention Focus Test was utilized for the measurement of the subject's attention level.

The Frostig Developmental Visual Perception Test

The Frostig Developmental Visual Perception Test is a visual perception test developed by Marianne Frostig in 1961. The Frostig Developmental Visual Perception Test is comprised of five subtests. The standard score is obtained from the percentage tables developed for the Frostig Developmental Visual Perception Test (Tuğrul et al., 2001).

The FTF-K Attention Focus Test

The FTF-K Attention Focus Test (Frankfurter Test für Fünfjährige-Konzentration) was developed by Raatz and Möhling in 1971. Children are asked to find and mark the pears from a set of apples and pears given on a scale within 90 seconds. The Frankfurter Attention Test is divided into 3 levels: those with scores between 0-22 are rated as below average, those with scores between 23-32 are rated as average, and those with scores between 33-43 are rated as above average.

The Gametics Game Program used in the study was implemented for 8 weeks between February and April. Within the scope of the program, digital games were played every other day under the supervision of the parents for no more than 30 minutes. Board games were played for two lesson hours per week under the supervision of the classroom teacher and were also left on the teacher's desk during breaks to be accessible to students. This structure ensured that students participated in the games regularly and created consistency in evaluating the effects of the program.

Data Analysis

The data obtained from the study were recorded in a computer environment using the SPSS (Statistical Package for Social Sciences) program and subsequently analysed using statistical data analysis techniques that were deemed appropriate for the purpose of the study. Initially, the Skewness and Kurtosis Tests were conducted to ascertain the normality of the data distribution. It was established that the distribution fell within the range of -1.5 and 1.5. Consequently, parametric tests were employed, given that the distribution was deemed to be normal. The analysis of the obtained data involved the utilization of percentage, frequency, and t-test techniques.

Results

Table 3

T-Test Results for the Posttest Mean Scores of the Frankfurter Attention Test

	Groups	N	X	Sd	df	t	p
Posttest	Experimantal	45	47.48	.93	44	6.9	.000*
	Control	45	43.02	4.38			

*p < 0.01

According to the t-test results applied to the post-test attention test scores of the students who participated and did not participate in the Gametics program, a statistically significant difference was found between the two groups (*t*=6.9; p<0.01). When the post-test attention test score averages were examined; it was determined that the attention test score averages of the students who participated in the program (X2=47.48) were higher than the attention test score averages of the students who did not participate (X2=43.02). This finding shows that the Gametics Game Program applications are effective in increasing the attention of the students.

Table 4

T-Test Results for the Pretest and Posttest Mean Scores of the Experimental Group

	N	X	Sd	df	t	p
Pretest	45	42.68	5.01	44	-6.58	.000*
Posttest	45	47.48	.94			

*p < 0.01

A statistically significant difference was observed between the attention test pre-test and post-test scores of the students who participated in the program (*t*=-6.58; p<0.01). It was found that the attention test mean scores of the students who did not participate in the program before the study (X=42.68) increased after the study (X=47.48). This shows that the Gametics Game Program applications are effective in increasing the attention scores of the students.

Table 5

T-Test Results for the Pretest and Posttest Mean Scores of the Control Group

	N	X	Sd	df	t	p
Pretest	45	41.66	5.05	44	-1.95	.67
Posttest	45	43.02	4.38			

Although the average attention test score (X2=41.66) of the students who did not participate in the program before the study increased in the post-test measurements (X2=43.02), no statistically significant difference was found between the attention test pre-test and post-test scores (*t*=-1.95; p>0.05).

Table 6

T-Test Results for the Posttest Mean Scores of the Frostig Visual Perception

	Groups	N	X	Sd	df	t	p
Posttest	Experimantal	45	62.26	7.91	44	-4.98	.000*
	Control	45	59.2	7.55			

*p < 0.01

As demonstrated in Table 6, the results of the t-test applied to the students' Frostig Visual Awareness post-test scores revealed a statistically significant difference between the two groups (*t*=-4.98; p<0.01). When the post-test attention test score averages were examined, it was determined that the attention test score average (X=62.26) of the students who participated in the Gametics program was higher than that of

the students who did not participate (X=59.2). This finding suggests that the Gametics Game Program applications in the experimental group were effective in enhancing the visual perception scores of the students.

Table 7

T-Test Results for Pretest and Posttest Mean Scores of the Experimental Group

	N	X	Sd	df	t	p
Pretest	45	58.24	7.53	44	-5.59	.000*
Posttest	45	62.26	7.55			

*p < 0.01

A statistically significant difference was observed between the visual perception pre-test and post-test scores of the students who participated in the program (*t*=-5.59; p<0.01). It was observed that the attention test scores of the students who did not participate in the program increased before the study (X=58.24) and after the study (X=62.26). The results show that the Gametics Game Program applications increased the visual perception levels of the students.

Table 10

T-Test Results for the Pretest and Posttest Mean Scores of the Control Group

	N	X	Sd	df	t	p
Pretest	45	59.22	8.47	44	.07	.93
Posttest	45	59.2	7.91			

The results demonstrate that there is no notable discrepancy in the visual perception score averages of the students who did not participate in the program during the study period (X = 59.22) in comparison to the initial assessment (X = 59.2) (*t* = .07; p > 0.05).

Discussion

The present study sought to examine the impact of the Gametics Game Program on the visual perception and attention levels of third-grade primary school students. The results of the analysis indicated a statistically significant difference between the visual perception and attention post-test scores of the students who participated and who did not participate in the program, with the former exhibiting superior performance. It can thus be concluded that the Gametics Game Program has a positive effect on visual perception and attention levels in students. The results of the study are in accordance with those of other studies, which indicate that mind/intelligence games are an effective method for enhancing visual perception and attention levels in students across different grade levels (Durulan & Angın, 2023; Kaçak, 2024; Yıldız, 2023; Yılmaz, Yüzbaşıoğlu & Hacıhatıroğlu, 2022).

A comparison of the visual perception scores of children who participated in the Gametics Game Program with those who did not revealed that the former group exhibited higher average scores. Altun (2017) concluded in his study with second-grade primary school students that physical activity cards and intelligence games increased the visual perception level of children. In their study examining the effectiveness of mechanical intelligence games on the mental skills of second-grade primary school children, Marangoz and Demirtaş (2017) found that the games increased the visual perception levels of students.

It was observed that the average attention scores of children who participated in the Gametics Game Program were higher than those of children who did not participate. In many studies examining the effect of intelligence/mind games on attention skills, it was seen that the results of this study were similar (Ayar, 2022; Kaçak, 2024; Yağlı, 2019). Ayar (2022) and Yağlı (2019) supported the conclusion that mind and intelligence games improve students' attention skills in their studies with primary school students. Kaçak (2024) found in his study in combined primary school classes that intelligence games improve primary school students' attention skills.

Conclusion

The results of this study demonstrate that the Gametics has a beneficial impact on the visual perception and attention levels of third-grade primary school students. The elevated visual perception and attention levels observed in the experimental group, in comparison to the control group, substantiates the efficacy of this program in fostering the cognitive abilities of the students. The findings indicate that the integration of intelligence games into the educational process can facilitate the academic and cognitive development of students. In this context, the incorporation of educational games such as the Gametics Game Program into the primary school curriculum can be regarded as a valuable tool to support the enhancement of students' visual perception and attention skills.

Recommendations

The Gametics game program is a program developed for children from preschool to the end of eighth grade. The present study was conducted with a sample of third-grade primary school students. It is possible to apply the same methodology with different age groups, thus allowing the effectiveness of the programme to be examined in relation to different age groups.

This study examined the impacts of the program on students' attention and visual perception skills. In other studies, studies examining its effectiveness on social and emotional skills as well as other cognitive skills can be planned.

In this study, students played digital games that included mind games at home under the supervision of their families. It would be beneficial to conduct studies that examine the

views of parents about these games. Furthermore, the process of family communication and family involvement in the games could be examined. Finally, teachers also took an active role in the study. Studies examining the views of teachers on the effectiveness of the program will contribute to the development of the implementer dimension of the program.

References

Akbaba, S., Sağlam, S., & Kök, M. (2003). *Eğitim-öğretimde drama ve oyunlar [Drama and games in education and training]*. Erzurum, Cemre Ofset.

Altun, M. (2017). *Fiziksel etkinlik kartları ile zeka oyunlarının ilkokul öğrencilerinin dikkat ve görsel algı düzeylerine etkisi [The effects of the physical activity cards and brain teasers to the attention and visual perception levels of the primary school students].* (Doctoral thesis, Gazi University).

Ayar, A. (2022). *Akıl ve zekâ oyunlarının ilkokul 4. sınıf öğrencilerinin yaratıcı düşünme, üst bilişsel farkındalık, dikkat ve sosyal beceri düzeylerine etkisinin incelenmesi [Investigation of the effects of mind and intelligence games on fourth grade students' creative thinking, metacognitive awareness, attention and social skills].* (Master's thesis, Ege University).

Devecioğlu, Y., & Karadağ, Z. (2014). amaç, beklenti ve öneriler bağlamında zeka oyunları dersinin değerlendirilmesi [Evaluation of mind puzzle course at the context of goals, expectations and recommendations]. *Bayburt Eğitim Fakültesi Dergisi*, 9(1), 41-61. https://dergipark.org.tr/tr/pub/befdergi/issue/23139/247172

Dunlap, D. (2009). The influences of time of day and preference for time on higher-level cognitive processes. The University of Texas at San Antonio. http://dx.doi.org/10.9734/BJESBS/2016/26784

Durulan, D., & Angın, D. (2023). Akıl ve zekâ oyunlarının okul öncesi dönem çocukların dikkat ve görsel algı düzeylerine etkisinin incelenmesi [Investigation of the effect of mind and intelligence games on preschool children's attention and visual perception levels]. Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 25(1), 333-357. https://doi.org/10.16953/deusosbil.1181847

Evans, J. J., & Wilson, B. A. (1992). A memory group for individuals with brain injury. *Clinical Rehabilitation*, *6*(1), 75-81. https://psycnet.apa.org/doi/10.1177/026921559200600110

Kaçak, M. (2024). *Birleştirilmiş sınıflarda zekâ oyunları kullanımının öğrencilerin sosyal, zihinsel ve dikkat becerilerine etkisi: Bir karma yöntem çalışması [The effect of using mind games in multigrade classes on students' social, mental and attention skills: A mixed method study].* (Master's thesis, Pamukkale University).

Lin, C., Shao, Y., Wong, L., Li, Y. ve Niramitranon, J. (2011). The impact of using synchronous collaborative virtual tangram in children's geometric. *The Turkish Online Journal of Educational Technology*, *10*(2), 250-258. https://dergipark.org.tr/en/pub/suje/issue/31175/340730

Marangoz, D., & Demirtaş, Z. (2017). Mekanik zekâ oyunlarının ilkokul 2. sınıf öğrencilerinin zihinsel beceri düzeylerine etkisi [The effect of mechanical mind games on mental skill levels of primary school second grade students]. *Journal of International Social Research*, *10*(53). http://dx.doi.org/10.17719/jisr.20175334149

Senemoğlu, N. (2004). *Gelişim öğrenme ve öğretim: kuramdan uygulamaya [Development, learning and teaching: from theory to practice]*. Ankara: Gazi Kitabevi.

Spencer, K. T. (2008). Preservice elementary teachers'two-dımensional visualization and attitude toward geometry: Influences of manipulative format. (Doctoral Dissertation, University of Florida).

Yağlı, M. C. (2019). *Zekâ oyunlarının ilkokul öğrencilerinin dikkat ve görsel algı düzeylerine etkisi [Intelligent games to the attention and visual perception levels of the primary school students].*(Master's thesis, Onsekiz Mart University).

Yıldız, R. (2023). *Zekâ oyunları ve geleneksel çocuk oyunlarının ortaokul öğrencilerinde dikkat ve görsel algıya etkisi [The effect of intelligence games and traditional children's games on attention and visual perception in secondary school students].* (Doctoral thesis, Aksaray University).

Yılmaz, E., Yüzbaşıoğlu, Y., Hacıhatıroğlu, N. (2022). Zekâ oyunlarının okul öncesi dönemdeki çocukların bilimsel süreç ve dikkat becerilerine etkisinin incelenmesi [Investigation of the Effects of Brain Teasers on the Science Process Skills and Attention Skills of Preschool Children]. *Yaşadıkça Eğitim Dergisi*, *36*(3), 627-642. https://doi.org/10.33308/26674874.2022363408

Yörükoğlu, A. (1989). *Çocuk ruh sağlığı [Child mental health].* Onbeşinci Baskı, Acar Matbaacılık Tesisleri.