

Retention in Kindergarten for Students with Autism Spectrum Disorder: Improvement, Delusion or Both?

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How to cite this paper: Loukeris, S., & Soulis, S.-G. (2021). Retention in Kindergarten for Students with Autism Spectrum Disorder: Improvement, Delusion or Both? *Psychology*, 12, 1070-1084.
<https://doi.org/10.4236/psych.2021.127064>

Received: June 11, 2021

Accepted: July 16, 2021

Published: July 19, 2021

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Abstract

Student retention in kindergarten is a common practice so that students will obtain the necessary school preparation for elementary school. The current study examines the impacts of retention on the students with ASD. A sample of 110 students was taken from kindergartens all over Greece, and it was observed that the retention was advantageous, but not for all students. Retention has not actually been beneficial for students from families with low educational attainment as well as students from foreign families. Moreover, these findings apply to students who could not attend extracurricular supporting programs. A serious dilemma came up as a result of all the above about the real benefits of the retention.

Keywords

Kindergarten Retention, Autism Spectrum Disorder, Foreign Families, Parental Educational Attainment

1. Introduction

In Greece, in recent years, the number of applications for retention into kindergarten has significantly increased. The repetition of the kindergarten class, the so-called “retention”, is carried out in accordance with paragraphs 7 and 8 of article 6 of Presidential Decree 79/2017 (Greece, 2017) as follows: “Retention in kindergarten for one (1) year may be implemented with the consent of the parents/legal guardians, when it is certified by the Centers of Educational and Counseling Support or a public medico-pedagogical center.” Centers of Educational and Counseling Support are public services located in every region of Greece, assessing students between 4 - 18 years old and giving advice on student

difficulties. They are also able to suggest appropriate interventions for these students at school. One of the suggestions they often make is that of kindergarten retention, when they consider that students are having serious difficulties. In the Greek educational system, students between 4 - 6 years old study in kindergarten, between 6 - 7 years old in the first grade of elementary school, between 7 - 8 years old in the second grade of elementary school, 8 - 9 years old in the third grade of elementary school, 9 - 10 years old in the fourth grade of elementary school, 10 - 11 years old in the fifth grade of elementary school and 11 - 12 years old study in the sixth grade of elementary school, thus completing primary school education. In Greece, there are two types of public kindergartens; the “general” kindergarten, where students of standard development and students with mild difficulties study and the “special” kindergarten, where students, with serious to severe difficulties are educated. In Greece, students with autism spectrum disorder (ASD) who attend the general kindergarten can receive support: 1) in the integration class, 2) through public parallel support provided by the Ministry of Education and 3) through private parallel support, undertaken by the student’s family. According to Min. Order 27922/2007, the integration class in kindergarten in Greece works as follows: it is staffed by special educators, who commit themselves to the education of students with special educational needs or disabilities who attend school. They are responsible for differentiating the school curriculum and personalizing it where needed (Greece, 2007). They are in the classroom where they support the students along with the class teacher, while when they deem it necessary, they can work individually or in small groups in a special room outside the classroom that has been properly designed depending on the student’s difficulty (e.g., space with minimal stimuli for students with ASD and ADHD or Braille typewriter for students with impaired vision). On the other hand, according to the law 3699/2008, parallel support, is an educational institution in which a special educator exclusively supports a single student who can only follow the learning process with individualized help. Parallel support as well as the integration class differentiate and personalize the school curriculum, while supporting the student even during the recess, helping him/her in his/her relationship with his/her classmates (e.g., organizing group games and helping the student to manage his/her emotions and behavior). It is provided almost exclusively to students with ASD (Greece, 2008). In case the parents wish, they can ask for private parallel support, but they must undertake the cost themselves.

According to what teachers and parents claim, the retention of children in kindergarten is linked to the student’s individual “deficits” and is considered a “good practice” in order to ensure a smooth transition to elementary school (Warren et al., 2014). These views are confirmed by international research according to which children who lack skills in the cognitive or social domain need more time in kindergarten to mature before transitioning into the first grade of elementary school (Bergin et al., 1996; Daniel & Wang, 2017; Hong & Yu, 2008; Reynolds, 1992; Smith & Shepard, 1988; Vandecandelaere et al., 2016; Wu et al.,

2010). Based on this approach, retention is considered as an attempt to enhance the student's knowledge and skills and at the same time as a means of preventing school failure in their later school career. In other words, this view supports the fact that retention will benefit students, who are not yet able to meet the academic requirements of the next level (Hong & Raudenbush, 2005; Hong & Yu, 2008; Mariano & Martorell, 2013; Peterson & DeGracie, 1987; Smith & Shepard, 1988; Vandecandelaere et al., 2016; Wu et al., 2010). However, there are numerous studies that show that the retention of children in kindergarten does not necessarily improve the academic performance of students at the next level and that there is no significant difference in the school performance in students who were retained in kindergarten compared to those who were promoted. Retention itself, without a supporting framework, can trap the student in a "repetition" of cognitive activities and the expected outcome would be the student withdrawal from the learning process whatsoever (Byrnes, 1989; Goldstein et al., 2014; Holmes, 1989; Mantzicopoulos & Morrison, 1992; Mendez et al., 2015; Pianta et al., 1997; Walters & Borgers, 1995; Yang, 2018). Furthermore, as noted in some cases, retention into kindergarten can be a traumatic experience for students, as they are forced to stay "behind" compared to their peers who are promoted (Hong & Raudenbush, 2005; Jacob & Lefgren, 2009; McCombs et al., 1992; Shepard, 1989; Smith & Shepard, 1988; Peixoto et al., 2016). Despite the discordance of research, kindergarten retention rates have increased significantly in recent decades (Bergin et al., 1996; Cosden et al., 1993; Mantzicopoulos & Morrison, 1992; Pianta et al., 1997; Warren et al., 2014).

In Greece, generally, students with ASD are expected to be retained. It has also been found that for many foreign students with ASD, it is proposed by the educational services of Greece that they should be retained. However, research into the potential benefits of kindergarten retention for students with ASD is lacking. Even the small number of surveys found in the Greek literature related to retention, focus on students without disabilities and mainly investigate the causes for which retention is proposed. Similarly, in international articles, such as Chen et al. (2014), Hong & Raudenbush (2005), Jimerson (1999), Lorence & Dworkin (2006), Moser et al. (2012), the positive effects of retention in strengthening the personality of students with ASD are not sufficiently highlighted. That is why the research was designed and implemented to study whether the retention of students with ASD, in the Greek kindergarten, improves their cognitive and social skills. Based on the above, the following research questions are posed.

Research questions (RQ)

- **RQ1:** What is the impact of retention in students with ASD in kindergarten on their cognitive and social domain?
- **RQ2:** What kind of support during retention in kindergarten correlates with the best outcomes for the students with ASD?
- **RQ3:** Does the attendance of extracurricular supporting programs by the students with ASD affect the results of retention?
- **RQ4:** When a student with ASD comes from a foreign family, what are the

results of retention?

- **RQ5:** How does the educational attainment of the parents affect the effectiveness of retention?

2. Method

2.1. Participants

The study comprised of 110 students who were diagnosed with ASD according to the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013), of whom 80 were boys (72.7%) and 30 girls (27.3%). Moreover, 20 students come from foreign families and 90 come from Greek families (see **Table 1**). The students come from foreign families were born in Greece and speak Greek as a second language. The age of the students at the beginning of the retention was from 5 years and 9 months to 6 years and 9 months with an average of 6 years and 4 months. Upon completion of retention, the age of the students was from 6 years and 6 months to 7 years and 6 months with an average of 7 years and 1 month of age. In Greece, during the school year 2019-2020, the students with ASD who were retained in kindergarten were 165. Thus, 66.66% of the total number of students with ASD who were retained participated in this research.

2.2. Research Tool

The psychotechnic tool we used to collect our data are Autism Treatment Evaluation Checklist (ATEC), created by the American Research Institute for autism (Edelson & Rimland, 1999). The internal consistency reliability is high (0.94 for the total score). ATEC can provide comparative results of the impact an intervention on students with ASD may have. In other words, it is not a diagnostic tool but an evaluation one. It consists of 4 scales that study **Speech-Language-Communication, Sociability, Sensory-Cognitive Awareness and Health/physical/Behavior**. Of the four scales, the first three were used. That is, the Speech-Language-Communication scale, the Sociability scale and the Sensory-Cognitive Awareness scale. The first scale consists of 14 questions, the second one of 18 and the third one of 20. They are all closed-format questions, and the answers are given on a 3-point Likert scale (1 = Not True, 2 = Little True, 3 = Very True).

Table 1. Student's sex and students from foreign family.

	Students		
	Foreign Family		Total
	YES	NO	
Boys	16	64	80
Girls	4	26	30
Total	20	90	110

For the study of the cognitive domain, we used the first scale, which assesses Speech-Language-Communication and the third scale, which assesses students' sensory-cognitive awareness. These two scales constituted of a new variable, the "level in the cognitive domain" variable. After Cronbach's alpha reliability analysis, a high internal consistency was obtained with $\alpha = 0.85$. The variable measured students' performance before and after kindergarten retention. The difference between the values of the "cognitive domain after retention—cognitive domain before retention" led to the variable "cognitive domain change". We followed the same process for the analysis of the social domain too. Specifically, for the study of students' social domain we used the second scale, which assesses sociability. Taking the final and initial measurements into consideration, that is, the results after and before the retention, we created a new variable that resulted from the difference of the two values "sociability after retention"—"sociability before retention", which was called "social domain change". At this point, concerning the sociability scale, it should be noted that the Cronbach's alpha reliability analysis showed a high internal consistency of $\alpha = 0.81$.

As far as the change in the cognitive domain and the change in sociability are concerned, when the deviation is negative, there is improvement, while when the deviation is positive, it shows deterioration. Initially, a pilot study was conducted, in which 25 teachers participated, who had taught retained students. After utilizing the relevant observations and suggestions from the participants, the final research tool emerged.

2.3. Data Collection Procedure

The survey was conducted from September 2019 to June 2020 and all rules of conduct were adhered to, such as consent of the participants, assurance of anonymity and the possibility to withdraw from the survey any time they wished. Participants were also informed in detail about how to complete the questionnaires. Data, concerning the students who are going to retain, were given to us by the Centers of Educational and Counseling Support.

The survey included two measurements, one at the beginning of the school year, in September 2019 (phase A), and another at the end of the school year and therefore in the completion of students' retention in June 2020 (phase B). During phase A (September 2019), questionnaires were sent to 138 Kindergartens across the country and 125 were completed, while in phase B (June 2020) 125 questionnaires were sent and 110 were sent back, which were the final sample of the research.

The questionnaires were completed by the special educators of the students who were retained. Of these, 93 were women (94.8%) and five were men (5.2%). Of the women 10 (10.8%) were between 24 - 30 years old, 39 (42%) between 31 - 40 years old, 29 (31.2%) between 41 - 50 years old and 15 (16%) between 50 - 60 years old. Of the men one (20%) was between 20 - 30 years old, three (60%) between 31 - 40 years old and one (20%) between 41 - 50 years old. As far as the

special educators are concerned, 45% of them had a master's degree in special education, 30% had two years of professional training in special education, 20% had attended an annual specialization seminar in special education and 5% had Ph.D. in special education.

2.4. Statistical Analysis

The data analysis was based on quantitative methods of measurement. Mean values and standard deviation, as well as one sample—test were used to measure the quantitative variables. Subsequently, cluster analysis was conducted. The purpose of cluster analysis was to classify students into categories according to their response to retention. Thus, a hierarchical cluster analysis was conducted (distance: Euclidean distance, clustering method): Average Linkage (between Groups) in a sample of 110 students based on the values of the two variables which study the change in social and cognitive domain in students with ASD, respectively. Cluster analysis led to the creation of three Clusters-groups. Thus, three groups were created that were interpreted through one-factor analysis of variance followed by Tukey HSD's Post Hoc Test. For each scale, statistically significant differences were found between the three clusters (social domain change: $F(2, 106) = 212.92, p < 0.001$ /cognitive domain change: $F(2, 106) = 182.83, p < 0.001$). The three groups that emerged are (see [Table 2](#)):

Group 1: Students did not improve significantly in any domain (mean change 0.58/−0.19 for the scales of Social domain Change/Cognitive domain change respectively).

Group 2: Students show significant improvement in both domains (mean change −19.3/−10.80 for the scales of Social domain Change/Cognitive domain change respectively).

Group 3: Students show significant improvement in cognitive domain, but not in the Social domain (mean change −0.3/−9.21 for the scales of Social domain Change/Cognitive domain change respectively).

3. Results

RQ1 results. The analysis demonstrated that both cognitive and social domains of students were positively affected by retention. The one-sample *t*-test revealed a statistically significant difference in the values of scales after the retention compared to the measurement before the retention. Specifically, the mean values of the scales are significantly lower in the final measurement than in the initial. In the case of the social domain, the difference is 5.07 points with an effect size of 51.5%, [$t(109) = 5.40, p < 0.001$]. In the case of the cognitive domain the difference is 5.54 points with an effect size of 87.3%, [$t(109) = 9.159, p < 0.001$] ([Table 3](#)). Therefore, as it is revealed, retention works positively for students with ASD both in the cognitive and social domains. It is clear, thus, that there has been a greater improvement in the cognitive domain of students with ASD.

Table 2. Cluster analysis.

	Average Linkage (Between Groups)					
	Group 1		Group 2		Group 3	
	no improvement in both domains	Significant improvement in both domains	Improvement only in cognitive domain			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Social Domain change	0.58	2.47	-19.3	7.14	-0.3	3.17
Cognitive Domain change	-0.19	1.90	-10.80	3.26	-9.21	2.93

Table 3. Mean scale changes and their statistical significance.

	Degrees of Freedom	Mean Difference	SD	T	Bidirectional <i>p</i> Value	Size Effect
Change of Social Domain	109	-5.0727	9.84067	-5.406	0.000	51.5%
Change of Cognitive Domain	109	-5.5455	6.35009	-9.159	0.000	87.3%

RQ2 results. However, the study showed that the results of the retention are also related to the “type of help that students receive in the classroom”. Participants were asked about the support provided to students. According to the answers, 46.3% of students ($N = 51$) had the help of public parallel support, 28.2% ($N = 31$) had the help of private parallel support, 15.5% ($N = 17$) attended the integration class, while 10% ($N = 11$) had no further support. To correlate the variables “student improvement” and “classroom support” the χ^2 -independence test was applied. The result showed a statistically significant dependence on the two variables. In other words, student support in the classroom is an important factor in improving students [$\chi^2 (2) = 25.78, p < 0.001$ /Fisher exact test: $p = 0.001$]. Specifically, of the students who were retained without any kind of support in the classroom, 81.8% had no improvement, while 18.2% showed improvement only in the cognitive field. Also, students who had public parallel support at 50.9% did not show a significant improvement in any domain, 23.5% had a significant improvement in both domains, while 25.6% showed improvement in the cognitive domain only. Of the students who had private parallel support, 16.1% showed a significant improvement in both domains, 66.3% had improvement in the cognitive domain, while 17.6% had no improvement in any domain. Finally, of the students who attended the integration class, 58.8% showed significant improvement in both domains. In conclusion, it was noted that the improvement of the students is directly related to the type of support they received. Of the three types of support provided in kindergarten, the most effective was the support provided by the integration class (**Table 4**).

RQ3 results. In addition, the impact of the afternoon supporting programs on the retention of students with ASD was studied. The χ^2 -independence test shows a statistically significant dependence on the two variables. In other words, when students attend supporting programs after school, along with retention, there is a significant factor in student improvement [$\chi^2 (2) = 32.88, p < 0.001$]. Specifi-

cally, when students attend additional extracurricular supporting programs, along with retention, there is a significant improvement in both domains corresponding to 34.4% and improvement in the cognitive domain at 35.6% (Table 5).

RQ4 results. To study whether the improvement of a retained student is related to whether he/she comes from a foreign family, the participants were asked about it. Their answers showed that 81.8% (N = 90) of the students came from Greek families while 18.2% (N = 20) came from foreign families. To decide the correlation between the variables “student improvement” and “student from a foreign family” the χ^2 -independence test was applied. The result shows a statistically significant dependence on the two variables. Specifically, when students belong to foreign families, they do not improve [$\chi^2(2) = 23.78, p < 0.001$]. In other words, when students belong to foreign families, there is no improvement in any domain. On the contrary, the native students who are retained show a significant improvement in both domains at a rate of 33.3%, and especially in the cognitive domain at a rate of 35.5% (Table 6).

Table 4. χ^2 independence test for students' improvement and classroom support.

	Classroom Support				Total
	No support	Public parallel support	Private parallel support	Integration class	
Group 1	9	26	5	3	43
No improvement in both domains	81.8%	50.9%	16.1%	17.6%	39.1%
Group 2	0	12	9	10	31
Significant improvement in both domains	0%	23.5%	17.6%	58.8%	28.1%
Group 3	2	13	17	4	36
Improvement only in cognitive domain	18.2%	25.6%	66.3%	23.6%	32.8%
Total	11	51	31	17	110
	100%	100%	100%	100%	100%

$\chi^2 = 25.78, p < 0.001$.

Table 5. χ^2 independence test for students' improvement after afternoon supporting programs.

	Afternoon supporting programs		Total
	YES	NO	
Group 1	27	14	41
No improvement in both domains	30%	70%	37.2%
Group 2	31	3	34
Significant improvement in both domains	34.4%	15%	30.9%
Group 3	32	3	35
Improvement only in cognitive domain	35.6%	15%	31.9%
Total	90	20	110
	100%	100%	100%

$\chi^2 = 32.88, p < 0.001$.

Table 6. χ^2 independence test for students' improvement and student from foreign family.

	Student from foreign family		Total
	YES	NO	
Group 1	16	28	44
No improvement in both domains	80%	31.1%	40%
Group 2	2	30	32
Significant improvement in both domains	10%	33.3%	29.1%
Group 3	2	32	34
Improvement only in cognitive domain	10%	35.5%	30.9%
Total	20	90	110
	100%	100%	100%

$\chi^2 = 23.78, p < 0.001$.

RQ5 results. Furthermore, it was studied whether the educational attainment of the parents is related to the improvement of the students with ASD. Firstly, we created three groups. The first group includes parents who have graduated junior high school (nine school years), the second group includes parents who have graduated high school or technical school (12 school years) and the third group includes parents who have a bachelor or postgraduate studies.

Concerning the educational attainment of the fathers, the findings were the following: 5.5% (N = 6) are junior high school graduates, 12.7% (N = 14) are high school graduates, 12.7% (N = 14) technical school, 56.3% (N = 62) have a bachelor and 12.8% (N = 14) have completed postgraduate studies. Then, to decide the possible correlation between the variables "student improvement" and "educational attainment of the father", the χ^2 -independence test was applied. The result shows a statistically significant dependence of the two variables. The improvement of the students depends significantly on the educational attainment of the father [$\chi^2(4) = 61.67, p < 0.001$]. Specifically, students whose father was a junior high school graduate did not improve in any domain at 100%. Students whose father has graduated high school had improvement in the cognitive domain at 17.9%. Finally, those students whose father has a higher education degree showed significant improvement in both domains by 42.1% (**Table 7**).

As far as the educational attainment of the mothers is concerned, it was observed that 8.2% (N = 9) are junior high school graduates, 29.1% (N = 32) are high school graduates, 49.1% (N = 54) have a bachelor and 13.6% (N = 15) have completed postgraduate studies. According to the statistical correlation test of the variables "student improvement" and "educational attainment of the mother", a significant dependence was found [$\chi^2(4) = 41.16, p < 0.001$]. In other words, student improvement depends significantly on the mother's educational attainment. More specifically, students whose mother has graduated junior high school showed no improvement in any domain at 77.8%. Students whose mother

has graduated high school did not improve in any domain at 78.1%. In contrast, those students whose mother has a higher education degree showed a significant improvement in both domains by 39.1% (Table 8).

The statistical analysis showed that retention had a positive effect on students with ASD. However, foreign students with ASD as well as students with ASD who come from parents with a low education background, do not seem to benefit much from retention. Similarly, students with ASD who do not have the opportunity to attend afternoon supporting programs have not benefited much from retention. At the same time, it was revealed that the most significant improvement regarding the retention is shown by the students with ASD who visit the integration class.

Table 7. χ^2 independence test for students' improvement and educational attainment of the fathers.

	Junior high school	High school/ Technical school	Bachelor/postgraduate studies	Total
Group 1	5	20	10	35
No improvement in both domains	83.3%	71.4%	13.1%	31.8%
Group 2	0	3	32	35
Significant improvement in both domains	0.00%	10.7%	42.1%	31.8%
Group 3	1	5	34	40
Improvement only in cognitive domain	16.7%	17.90%	44.8%	36.4%
Total	6	28	76	110
	100%	100%	100%	100%

$\chi^2 = 61.67$ $p < 0.001$.

Table 8. χ^2 independence test for students' improvement and educational attainment of the mothers.

	Junior high school	High school	Bachelor/postgraduate studies	Total
Group 1	7	25	15	47
No improvement in both domains	77.8%	78.1%	21.7%	42.7
Group 2	1	3	27	31
Significant improvement in both domains	11.1%	9.4%	39.1%	28.1%
Group 3	1	4	27	32
Improvement only in cognitive domain	11.1%	12.5%	39.2%	29.2%
Total	9	32	69	110
	100%	100%	100%	100%

$\chi^2 = 41.16$ $p < 0.001$.

4. Discussion

The current study examined the impact of students' retention with ASD in their cognitive and social domain. As it emerged from the analysis of the results, the retention has a positive effect on both domains and depends on the type of education they receive at school, the extracurricular support provided to them, the educational attainment of their parents and if students come from a foreign family. The results of the present study, which demonstrate the improvement of students with ASD due to retention, in the cognitive and social domain are confirmed by the corresponding findings of the research of Heckman (2006), Hong & Raudenbush (2005), Hong & Yu (2008), Peterson & DeGracie (1987), Smith & Shepard (1988), and Vandecandelaere et al., (2016). Specifically, the positive contribution in the social domain of the students with ASD who were retained was noted, a finding which was also apparent in the research of Buunk & Gibbons (2007), Gleason et al. (2007), Hong & Yu (2008), Marsh et al. (2008), Rimm-Kaufman & Pianta (2000) and Wu et al. (2010). However, this finding is disputed by the research of Brophy (1983), who conclude that retention has negative consequences for students' sociability as it affects their self-esteem and level of communication with their classmates. At this point, it should be noted that the findings of this study confirm the research hypotheses that in students with limited academic performance and social skills, such as most students with ASD, retention has positive results (Chen et al., 2014; Hong & Raudenbush, 2005; Renaud, 2013; Yang, 2018). It was also found that many students who are retained come from foreign families. This finding is consistent with the results of Jimerison et al. (1997) and Goldstein et al. (2014). Similarly, the current study found that a significant number of students who are retained belong to families with low educational backgrounds. This finding is also apparent in the research of Alexander et al. (2003) as well as Frey's (2005).

5. Conclusion

The research on students who are retained in kindergarten concludes with conflicting results. Many pieces of research highlight its positive benefits, others its negative impact on the mental health of the students, while a small number of studies show no difference in the performance of students who are retained compared to students who are promoted and study in the first grade of elementary school. However, in the present research, the positive effect of the retention in the cognitive and social domain of students with ASD is clearly noted. Of course, this finding does not apply to all students. Foreign students with ASD as well as students with ASD who come from parents with a low education background, do not seem to benefit much from retention. Similarly, students with ASD who do not have the opportunity to attend afternoon supporting programs have not benefited much from retention. At the same time, it was revealed that the most significant improvement regarding the retention is shown by the students with ASD who visit the integration class. Therefore, according to the above,

it is necessary for the Greek State to support inclusive education and plan the appropriate educational interventions, so that retention can be beneficial to every student with ASD.

The present research has some limitations that should be mentioned. Since the sample is small, the results of the present study cannot be generalized. In addition, because of the relevance of the content of the tool used in this study it cannot be safely deduced that pupil improvement is due to retention or due to interaction with other factors such as student development and maturity or the social environment. Moreover, a thorough study of the results of retention is not feasible. This happens because in the current study there is no comparison with a corresponding group of children who attended elementary school, even though retention was proposed, but their parents did not give their consent.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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