

Investigation of Academic Success, Self-esteem and Academic Self-Concept in 4th Class Primary School Students

Seher Çetinkaya¹

¹ Education Faculty, Ordu University, Ordu, Turkey

Correspondence: Seher Çetinkaya, Education Faculty, Ordu University, Ordu, Turkey. Tel: 90-452-226-5200.
E-mail: sbayat_cetinkaya@hotmail.com

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Abstract

In Turkey due to changes in the age starting school implemented during the 2012-2013 academic year, children ages from 60 months to 84 months were subject to the same educational program in the same class. By the 2015-2016 academic year these children were at the end of 4th class. This research aimed to investigate the Turkish and mathematic lesson success, academic self-concepts and self-esteem of 4th class students and determine the opinions of class teachers on this topic. The research used a mixed method pattern with convergent parallel pattern. At the end of the research quantitative findings relating to Turkish and mathematic lesson success according to age starting school and educational level of parents; Turkish and mathematic lesson academic self-concept and self-esteem according to age starting school; and qualitative findings of class teacher opinions were compared, interpreted and discussed in light of the literature.

Keywords: age starting school, academic success, academic self-concept parental educational level, self-esteem, Turkish and mathematics lessons

1. Introduction

In many countries age is accepted as the criterion to determine when to attend school. When European countries are investigated in Bulgaria, Lithuania, Latvia, Finland, Sweden and Estonia the age is 7, in Greece, Croatia, Cyprus, Hungary, Malta, the Netherlands, England and Bosnia the age is 5, in Serbia, Yugoslavia and Turkey it is 5-5.5 years, while in other European countries 6 is accepted as the age to start school. In some countries in addition to mandatory age starting school, teacher observations, parents' wishes and preschool evaluation results are also criteria for starting school (Sharp, 2002). The age starting school is also indirectly accepted as a determinant of school maturity of children. Children who reach school maturity can complete tasks expected of them and achieve expected academic success. It is known that academic success is affected by self-esteem and the formation of academic self-concepts.

According to Coopersmith (1967), self-concept is a construct developed on the interest, ability and aims of an individual. This construct is shown by the "I" symbol. To state it differently, it is the thoughts of the person about themselves related to the self. Self-esteem is an assessment of the difference between the self image and the ideal self of the individual (Pişkin, 1997). Coopersmith (1967) mentioned four basic factors in development of self-esteem.

- One of these basic factors is the level of interaction of interest, acceptance and respect seen from others which has an important place in the life of the individual.
- Another factor is the success of the individual, their position and their status. Success of an individual ensures awareness within society and gaining status; this forms a concrete foundation for self-esteem.
- The individual should achieve the aims set for them by others and by themselves. In this way assessment of individual success and strength in terms of their own criteria forms a basic factor related to development of self-esteem.
- Another factor is the reaction of the individual to assessment of themselves by others.

Academic self-concept expresses how students perceive their own skills as a result of feedback and experience they gain in the school environment. Academic self-concept is specific to its field of effect, because students may have different opinions of their skills in different lessons (Roy, Guay & Valois, 2015). As a result of

child-environment interaction comprising feedback received about success in their environment, children obtain academic self-concepts (Bracken & Howell, 1991).

In Turkey with the implementation of the 4+4+4 educational system in the 2012-2013 academic year, the Ministry of National Education announced the following changes:

For first class of primary school all children aged 66 months from the end of September of that year will be registered. Children aged from 60-66 months prepared for primary school in terms of development will be registered for first class of primary school at the written request of parents. Those children aged 66 months and above with the right to register in terms of age, but without sufficient physical or mental development who will not adapt to school will be directed to preschool education or have registration deferred for one year on producing a medical diagnosis report of insufficient physical or mental development by the end of November.

Until the 2012-2013 academic year, children began school if they were aged 72 months by the month of December of that year. With this change in the 2012-2013 academic year, from September students aged from 60 months to 84 months were subject to the same educational program in the same class.

In the Turkish literature (Bayat, 2015, Bayat & Şentürk, 2014; Ceran, Yıldız & Özdemir, 2015; Gündüz ve Çalışkan; 2013, Kahramanoğlu, Tiryaki & Canpolat, 2016), there are studies on the 60-66 month students in first class of primary school. In these studies as 60-66 month students have lower school maturity compared to older age groups, it was noted they were less successful in learning reading and writing. In the 2015-2016 academic year, these students were in 4th class finishing primary school. It was thought that research into the Turkish and mathematic lesson success of 4th class students in terms of age starting school and parental educational level and also into academic self-concepts and self-esteem in terms of age starting school will contribute to research in this area. The best assessor of the 4 year primary education of these students is the class teacher. It was thought that obtaining the opinions of class teachers on these 60-66 month students will contribute to assessing the effects of age starting school. This research aimed to determine opinions relating to the Turkish and mathematic lesson academic success, self-esteem and academic self-concept of 4th class students who began school aged 60-66 months. With this aim, the answers to the following questions were sought.

1. For 4th class primary school students, in terms of age starting school, do
 - a. Turkish lesson success
 - b. Mathematic lesson success
 - c. Turkish lesson academic self-concept
 - d. Mathematic lesson academic self-concept
 - e. And self-esteem vary significantly?
2. For 4th class primary school students, in terms of maternal educational level, do
 - a. Turkish lesson success
 - b. And mathematic lesson success vary significantly?
3. For 4th class primary school students, in terms of paternal educational level, do
 - a. Turkish lesson success
 - b. And mathematic lesson success vary significantly?
4. For 4th class primary school students, is there a significant correlation between Turkish lesson success and Turkish lesson academic self-concept and self-esteem?
5. For 4th class primary school students, is there a significant correlation between mathematic lesson success and mathematic lesson academic self-concept and self-esteem?
6. What are the opinions of class teachers on
 - a. The importance of age starting school for academic success?
 - b. Difficulties encountered in 1st class Turkish and mathematic lessons by students starting school at 60-66 months?
 - c. Difficulties encountered in 4th class Turkish and mathematic lessons by students starting school at 60-66 months?
 - d. The correlation between academic self-concept and self-esteem of students starting school at 60-66 months?

2. Method

2.1 Research Model

The study used a mixed method of analysis for quantitative and qualitative data using a mixed method pattern of converging parallel patterns. In converging parallel pattern research quantitative and qualitative stages are

completed simultaneously. Equal weight is given to methods in this pattern, with stages kept separate during analysis and later results combined during general interpretation. In this pattern the aim is to compare quantitative results and qualitative findings and to synthesize the quantitative and qualitative results to develop a full comprehension of the case (Creswell & Plano Clark, 2014).

The qualitative research pattern of the phenomenological method was used. Phenomenological studies define a phenomenon in several individuals and the common understanding of experiences relating to the concept (Cresswell, 2014). In other words, the focus is on how people perceive a phenomenon, how they describe it, feel about it, judge it, remember it and make sense of it and how they talk about it with others (Patton, 2014). In this study, the aim was to determine the experiences of class teachers relating to Turkish and mathematic lesson success, academic self-concepts and self-esteem of fourth class students and the effect of age starting school and parental educational levels. In this way, the study may be described as phenomenological research.

From a quantitative viewpoint, the research may be described as a simple state causal-comparative study. In simple state causal-comparative research, the researcher tests whether there is a correlation between a categorical independent variable and a quantitative dependent variable and whether it is statistically significant or not (Johnson & Christensen, 2014). In this research, the Turkish and mathematic lesson success of fourth class students was investigated in terms of age starting school and parental educational level, while academic self-concepts and self-esteem were investigated in terms of age starting school.

2.2 Study Group

In choosing mixed samples, time (simultaneous and consecutive) and sampling correlation (identical, parallel, nested and multi-level) criteria form a mixed sampling pattern (Johnson & Christensen, 2014). Quantitative and qualitative data were collected simultaneously and at different levels of the population (teachers and students) so a multi-level simultaneous sampling pattern was used.

To choose teachers for collection of qualitative data, the criteria sampling method was from targeted sampling methods. For phenomenological studies it is recommended to use a criteria based sampling choice because phenomenology patterns should be formed of individuals representing all participants with experience of the phenomenon (Cresswell, 2014). This study was completed with 11 class teachers from schools in moderate socio-economic environments who taught the same class from first class to fourth class with students of different age groups in the class. The codes and demographic information for the participants is presented in Table 1.

Table 1. Demographic characteristics of teachers participating in interviews

Participants	Gender		Occupational experience				Graduate type of school			
	Female	Male	1-5 years	6-10 years	11-15 years	15 years and above	Educational Faculty	Educational Institute	Other 4-year faculties	
T1	x					x			x	
T2	x			x			x			
T3		x				x	x			
T4		x				x	x			
T5		x			x		x			
T6	x					x	x			
T7	x				x		x			
T8		x				x			x	
T9	x					x	x			
T10		x				x		x		
T11	x					x	x			
	6	5	-	1	2	8	9	1	1	

As seen in Table 1, 6 participants were female, 5 were male, 8 had more than 15 years Professional experience, 2 had 11-15 years and 1 had 6-10 years experience. Nine were graduates of educational faculties, 1 from educational institute and 1 from another 4-year faculty.

For student choice for collection of quantitative data, the targeted sampling choice was used and 265 fourth class students in the classes taught by the teachers above were taken as the sample. Of students in the sample group, 11.3% registered for first class at 60-66 months, 32.8% at 67-72 months and 55.8% at 73 months and above. For mothers of students, 45.7% were primary school graduates, 34.3% were middle school graduates, 16.2% were high school graduates and 3.8% were university graduates. Of fathers, 25.3% were primary school graduates, 35.1% were middle school graduates, 30.9% were high school graduates, 7.9% were university graduates and 0.8% received postgraduate education.

2.3 Data Collection Tools and Data Collection

2.3.1 Interview Form

To determine the opinions of teachers, a semi-structured interview form comprising open-ended questions was used. In preparing the interview form, the literature was scanned, questions determined and later expert opinions sought (experts in education programs and teaching, guidance and psychological counseling, Turkish education). Corrections were made in light of expert opinions. The draft form was applied to a group outside of the research to test comprehension and functionality of questions to obtain a useful quality interview form. After pre-application, there were no changes made to the questions on the interview form. Some of the questions on the interview form were as follows:

1. *How important do you think age starting school is for success in school?*
2. *What do you think of students starting school early and older age groups learning in the same classroom? What would change for the students if those starting early were placed in a separate class?*

At the data collection stage, teachers were interviewed the aim of the research explained and directions for completion of the interview form explained. The form was left with teachers and collected one week later.

The collected data were analyzed and focus group interviews completed with participants to examine the answers to questions together and discuss any additional matters. The meeting was recorded and later transcribed into Word. The focus group interview and data obtained from the interview form were analyzed again by two experts and the analysis results shared with participants in a final interview.

At the end of the final interview, the analyzed data were reviewed and themes, codes and opinions prepared in tables.

Phenomenological research generally collects data from multiple in-depth interviews with participants (Creswell, 2014). Participants may write their experiences or face-to-face interviews are completed. It is important in phenomenological patterns that the researcher describe the experiences of the participants. Then the expectation is that common experiences of all participants will be a focus (Johnson & Christensen, 2014). In this research first written data were collected, a list of meanings relating to experiences created and then a focus group interview was held to describe the basic characteristics of common experiences.

2.3.2 Self-esteem Inventory

Developed in 1991 by Coopersmith, this scale was adapted to Turkish with reliability and validity studies completed by Pişkin (1997). This scale developed to identify self-esteem levels in students is recommended for use by both high school (Pişkin, 1997), and 3rd, 4th and 5th class primary school students (Güçay, 1989). It was developed to measure the thoughts of an individual relating to themselves in social, academic, family and individual life. The original scale comprises 58 items.

The School Short Form comprises 25 questions. It is applied to children in the same age group. Individuals may answer with statements such as “Applies to me” and “Does not apply to me” and also “Yes” and “No”. The format of statements is appropriate to both. A “No” answer to a negative statement and a “Yes” answer to a positive statement each receive one point, with all points added and multiplied by 4 to obtain an assessment on a scale of 100. Thus the obtained result gives the self-esteem level of the individual. To determine whether the self-esteem level is low, moderate or high, the mean of the group the individual belongs to is identified and the individual points are compared to the mean (Coopersmith, 1991).

Pişkin (1997) investigated 120 students in 4th and 5th class primary school and found the KR 20 reliability coefficient was .77. A study by Pişkin (1997) of 3rd class high school students used the KR 20 and half-test method to identify the reliability of the scale. According to the results of the study, the KR 20 and half test coefficient was calculated as .76. The KR 20 coefficient for the academic self-esteem subscale is .47 with half test coefficient of .52.

The reliability coefficient calculated in this study was .82.

2.3.3 Turkish and Mathematic Academic Self Concept Scale

Developed by Brookover and adapted for Turkish by Senemoğlu (1989), the “academic self-concept” inventory was used in the research. This scale comprises 8 questions to determine the academic self-concept of students related to lessons. The inventory was adapted and used by Emir and Özdemir (2004) for Atatürk’s Principles and Reforms lessons, by Subaşı (2000) for Occupational Guidance lessons and by Şahin-Yanpar (1994) for Social Sciences lessons. In this study expert opinions were obtained and it was adapted for Turkish lessons with an internal reliability coefficient of .77 calculated for Turkish lessons and .83 for mathematics lessons.

2.4 Validity and Reliability

In qualitative research, checking the accuracy of the research involves testing the validity of findings. To ensure validity of qualitative research, researchers must spend a long time in the field, test accuracy by feedback of result reports and themes with participants, describe the findings in-depth and obtain expert opinions on the accuracy of the explanation (Creswell, 2015).

The aim of this study, data collection tools and how data was collected and analyzed is explained transparently and in detail. While determining participants a criteria-based sampling method was chosen, the demographic information of participants was described and three different interviews at different times organized with participants. In-depth research and investigation was embraced (collection of data, analysis and assessment). For data collection and analysis, a coherent and consistent process was followed until results were obtained. Additionally, results obtained from interviews were shared with participants and another expert to obtain opinions. This may be interpreted as proof of the validity of the research.

An interview form that may be used by other researchers was created in the study. How data were collected and analyzed are explained. Data were analyzed by two different experts and coding consistency determined. The percentage compatibility of coding of the analysis results by two experts was .88. Miles and Huberman (1994) recommended that coding reliability be at .80 compatibility level. In conclusion, the reliability of the study was at acceptable levels.

For the qualitative dimension of the research, scale tools with previous validity and reliability studies were used, with reliability studies performed in this research.

2.5 Data Analysis

For qualitative data analysis, standard deviation, arithmetic mean and percentages were calculated. Before analysis, the Kolmogorov-Smirnov normality test was used to determine whether the distribution of the dependent variable was normal or not. The results of Kolmogorov-Smirnov tests found that the dependent variables in all groups did not have normal distribution so the non-parametric Kruskal Wallis and Mann-Whitney U tests were used. The effect size in analyses was calculated with the formula: $r = z/\sqrt{n}$. To identify correlations, the non-parametric Spearman Brown test was used as data were not normally distributed.

The phenomenological analysis method was used for qualitative data. The stages of phenomenological analysis may be listed as (Creswell, 2015; Patton, 2014);

- Determination of key words
- Formation of meaning clusters
- Textural/structural descriptions
- Formation of themes (unchanging core)

For analysis of data, the following steps were followed. The notable answers to questions on the interview form and data obtained from focus group interviews were processed into tables for visualization. Codes were created from investigation of data on the tables with themes determined by considering the similar properties of the codes. Based on themes observed in the data, interpretations were expressed in descriptive form. Tables were created after determining themes and sample sentences used to enrich the tables. The following coding and descriptive technique was used in the data analysis processing.

T₁, T₂, T₃: Participants with this opinion (class teachers)

[¹], [²], [³], Participants with notable opinions

After separate analysis of quantitative and qualitative data, due to the nature of mixed methods, analysis results were compared and similarities and differences determined and discussed.

3. Findings

The data relating to differences in Turkish lesson success according to the variable of age starting school of 4th class students are presented in Table 2.

Table 2. Kruskal Wallis test results related to age starting school in terms of Turkish lesson success

Groups	Mean	sd	χ^2	p	Significant difference
1(60-66 months)	116.22	2	1.628	.443	
2(67-72 months)	134.64				
3(73 months and above)	135.44				

$p \leq .05$

According to the analysis results, there was no significant difference in Turkish lesson success according to age starting school for 4th class students ($\chi^2(2) = 1.628, p > .05$). However, when mean points are examined, it appears that Turkish lesson success increased according to age starting school.

The data relating to differences in mathematic lesson success according to the variable of age starting school of 4th class students are presented in Table 2.

Table 3. Kruskal Wallis test results related to age starting school in terms of Mathematic lesson success

Groups	Mean.	sd	χ^2	p	Significant Difference
1(60-66 months)	115.63	2	2.173	.337	
2(67-72 months)	130.91				
3(73 months and above)	137.75				

$p \leq .05$

According to the analysis results, there was no significant difference in mathematic lesson success according to age starting school for 4th class students ($\chi^2(2) = 2.173, p > .05$). However, when mean points are examined, it appears that mathematic lesson success increased according to age starting school.

The data relating to differences in Turkish lesson academic self-concept according to the variable of age starting school of 4th class students are presented in Table 4.

Table 4. Kruskal Wallis test results related to age starting school in terms of Turkish lesson academic self-concept

Groups	Mean	sd	χ^2	p	Significant difference	Effect size
1(60-66 months)	94.95	2	10.913	.004	1-2 (U=975)	$r = .19$
2(67-72 months)	127.61					
3(73 months and above)	143.88				1-3 (U= 1408.5)	$r = .23$

$p \leq .05$

According to the analysis results, there was a significant difference in Turkish lesson academic self-concept of 4th class students according to age starting school ($\chi^2(2) = 10.913, p < .05$). To determine which groups caused the significant difference in Kruskal Wallis test results, the two-way combinations of subcategories of the variable were compared with the Mann-Whitney U test. Students who began school at 67-72 months and 73 months and older had higher Turkish lesson academic self-concept compared to students who began school at 60-66 months.

The data relating to differences in mathematic lesson academic self-concept of 4th class students according to the variable of age starting school are presented in Table 5.

Table 5. Kruskal Wallis test results related to age starting school in terms of mathematic lesson academic self-concept

Groups	Mean	sd	χ^2	p	Significant difference	Effect size
1(60-66 months)	93.83	2	9.607	.008	1-2 (U=911.5)	$r = .23$
2(67-72 months)	132.57					
3(73 months and above)	141.19				3-1 (U=1438.5)	$r = .23$

$p \leq .05$

According to the analysis results, there was a significant difference in mathematic lesson academic self-concept of 4th class students according to age starting school ($\chi^2(2) = 9.607, p < .05$). To determine which groups caused the significant difference in Kruskal Wallis test results, the two-way combinations of subcategories of the variable were compared with the Mann-Whitney U test. Accordingly students who began school at 67-72 months and 73 months and older had higher mathematic lesson academic self-concept compared to students who began school at 60-66 months.

Kruskal Wallis test results of self-esteem according to the variable of age starting school are presented in Table 6.

Table 6. Kruskal Wallis test results relating to age starting school in terms of self-esteem

Groups	Mean	sd	χ^2	p	Significant difference
1(60-66 months)	127.45	2	.338	.845	
2(67-72 months)	136.30				
3(73 months and above)	132.18				

$p \leq .05$

The analysis results show that there was no significant difference in self-esteem of 4th class students according to age starting school ($\chi^2(2) = .338, p > .05$). However, when mean points are examined, it appears that self-esteem was highest for students who began school at 67-72 months.

The Kruskal Wallis test results for Turkish lesson success according to the variable of maternal educational level is presented in Table 7.

Table 7. Kruskal Wallis test results relating to maternal educational level in terms of Turkish lesson success

Groups	Mean	sd	χ^2	p	Significant Difference	Effect Size
1 (primary school)	112.05	3	17.097	.001	1-3 (U=1503)	$r = .32$
2 (middle school)	135.41					
3 (high school)	183.33				2-3 (U=1389.5)	$r = .23$
4 (university)	120.85					

$p \leq .05$

According to the analysis results, there was a significant difference in Turkish lesson success of 4th class students depending on maternal educational level ($\chi^2(3) = 17.097, p < .05$). According to Mann Whitney U test to determine the source of the difference, the Turkish lesson success of children with mothers who graduated high school was higher than those with mothers who were primary school and middle school graduates.

The Kruskal Wallis test results of mathematic lesson success according to maternal educational level are presented in Table 8.

Table 8. Kruskal Wallis test results relating to maternal educational level in terms of mathematic lesson success

Groups	Mean	sd	χ^2	p	Significant difference	Effect size
1 (primary school)	118.07	3	28.282	.000	1-2 (U=4379)	$r = .17$
2 (middle school)	135.22				1-3 (U=1243.5)	$r = .40$
3 (high school)	173.63				2-3 (U=1252)	$r = .29$
4 (university)	118.70				3-4 (U=113.5)	$r = .14$

$p \leq .05$

According to the analysis results, there was a significant difference in mathematic lesson success of 4th class students depending on maternal educational level ($\chi^2(3) = 28.282, p < .05$). According to Mann Whitney U test to determine the source of the difference, the mathematic lesson success of children with mothers who graduated high school was higher than those with mothers who were primary school, middle school and university graduates.

The Kruskal Wallis test results for Turkish lesson success according to the variable of paternal educational level is presented in Table 9.

Table 9. Kruskal Wallis test results relating to paternal educational level in terms of Turkish lesson success

Groups	Mean	sd	χ^2	p	Significant difference	Effect size
1 (primary school)	100.70	4	28.885	.000	1-2 (U=2512.5)	$r = .16$
2 (middle school)	123.76				1-3 (U=1533.5)	$r = .38$
3 (high school)	161.82				1-4 (U=413)	$r = .30$
4 (university)	157.21				1-5 (U=10)	$r = .25$
5 (postgraduate)	208.50				2-3 (U=2680)	$r = .26$

$p \leq .05$

As seen in the table, there was a significant difference in Turkish lesson success of 4th class students depending on

paternal educational level ($\chi^2(4) = 28.885$, $p < .05$). According to Mann Whitney U test to determine the source of the difference, the Turkish lesson success of children with fathers who graduated primary school was lower than those with fathers who were middle school, high school and university graduates. The Turkish lesson success of students with fathers who graduated high school was higher than those with fathers who graduated middle school. In general, as paternal educational level increased, Turkish lesson success increased.

The Kruskal Wallis test results for mathematic lesson success according to the variable of paternal educational level is presented in Table 10.

Table 10. Kruskal Wallis test results for mathematic lesson success in terms of paternal educational level

Groups	Mean	sd	χ^2	p	Significant difference	Effect size
1 (primary school)	97.96	4	33.577	.000	1-2 (U=2470)	$r = .18$
2 (middle school)	122.15				1-3 (U=1402)	$r = .42$
3 (high school)	166.63				1-4 (U=406.5)	$r = .31$
4 (university)	153.52				1-5 (U=7)	$r = .26$
5 (postgraduate)	217.25				2-3 (U=2480)	$r = .30$

$p \leq .05$

As seen in the table, there was a significant difference in mathematic lesson success of 4th class students depending on paternal educational level ($\chi^2(4) = 33.577$, $p < .05$). According to Mann Whitney U test to determine the source of the difference, the mathematic lesson success of children with fathers who graduated primary school was lower than those with fathers who were middle school, high school and university graduates. The mathematic lesson success of students with fathers who graduated high school was higher than those with fathers who graduated middle school. In general, as paternal educational level increased, mathematic lesson success increased.

The data related to correlation of Turkish lesson success and Turkish academic self-concept and self-esteem are presented in Table 11.

Table 11. Correlation between Turkish lesson success and Turkish academic self-concept and self-esteem

Turkish lesson success	n	Turkish academic self-concept	Self-esteem
	265	$r = .565^*$	$r = .341^*$
		$p = .000$	$p = .000$

$p \leq .01$

According to the results of Spearman Brown analysis, there was a moderate positive significant correlation between Turkish lesson success with Turkish academic self-concept ($r = .565$) and self-esteem points ($r = .341$).

The data related to correlation of mathematic lesson success and mathematic academic self-concept and self-esteem are presented in Table 12.

Table 12. Correlation between mathematic lesson success and mathematic academic self-concept and self-esteem

Mathematic lesson success	n	Mathematic academic self-concept	self-esteem
	265	$r = .626^*$	$r = .288^*$
		$p = .000$	$p = .000$

$p \leq .01$

As seen in the table, according to the results of Spearman Brown analysis, there was a moderate positive significant correlation between mathematic lesson success with mathematic academic self-concept ($r = .626$) and self-esteem points ($r = .288$).

The opinions of class teachers relating to age starting school are presented in Table 13.

Table 13. Teachers' opinions of age starting school

Themes	Codes	Opinions
Age starting school is very important for academic success	Academic success	T ₁ , T ₂ , T ₃ , T ₄ , T ₅ , T ₆ , T ₇ , T ₈ , T ₉ , T ₁₀ , T ₁₁ ; Students who start school early would be more successful and have less difficulties if they waited a year [3]. T ₁ , T ₄ , T ₅ , T ₁₁ , T ₇ ; Those who start after 72 months are always more successful than those who start younger [11].
	Development and school maturity	T ₂ , T ₆ , T ₁₀ ; Age at starting school is very important in terms of child's reading maturity [10]. T ₃ , T ₅ , T ₉ ; Children who start early find it very difficult to adapt to school [5]. T ₄ , T ₅ , T ₁₀ ; It's important in terms of mental development [10]. T ₂ , T ₄ , T ₅ ; It's important in terms of physical development [2]. T ₆ , T ₉ ; Children who start school early are negatively affected in terms of personality and social development [6].
Other elements are important as well as age starting school	Intelligence	T ₁ , T ₂ , T ₈ , T ₉ , T ₁₁ ; I think the intelligence factor is important for success. Intelligent students narrow the gap with older age groups quickly [8].
	Family	T ₄ , T ₇ , T ₈ , T ₉ , T ₁₁ ; I think family educational level is very important for school success [7]. T ₄ ; I am of the opinion family income levels are important [4]. T ₁₀ ; The family's interest in the child's education affects success [10].
Related to different age groups learning in the same class	Education in the same class	T ₂ , T ₃ , T ₄ , T ₅ , T ₆ , T ₇ , T ₈ , T ₉ , T ₁₁ ; They should be in the same class to prevent feelings of failure and damage to self-confidence [3].
	Education in a different class	T ₁₀ ; For students to learn from each other they should be in the same class [10].
	Undecided	T ₁ ; Both situations have benefits and disadvantages. I have no clear idea [1].

As seen in the table, all teachers who participated in the interviews believed that age starting school was important for academic success. According to the teachers, the age starting school is important for the development of the child and to reach school maturity. In addition to age starting school, family education and income level and family interest in children's education were considered to affect academic success. The majority of teachers participating (f=9) did not think it appropriate for students starting school young to receive education in the same class as older children.

The opinions of teachers relating to difficulties encountered in Turkish and mathematic lessons in 1st class by students starting school early are presented in Table 14.

Table 14. Teachers' opinions of difficulties in Turkish and Mathematics lessons in 1st class encountered by students beginning school early

Themes	Codes	Statements
Difficulties relating to Turkish lessons	Writing	T ₁ , T ₃ , T ₄ , T ₅ , T ₆ , T ₁₀ , T ₁₁ ; Due to weak hand muscles, students have difficulty holding pencils and with hand writing [4].
	Reading	T ₂ , T ₅ , T ₇ , T ₈ , T ₁₁ ; They are behind the older age group when learning to read [7]. T ₁ , T ₅ ; They have difficulty comprehending even very simple paragraphs when reading [5].
	Communication	T ₄ , T ₆ , T ₁₀ ; As their vocabulary is small, they have difficulty expressing themselves [10]. T ₂ , T ₈ , T ₉ , T ₁₀ ; They have difficulty understanding and applying directions given [9].
	Motivation	T ₁₀ , T ₁₁ , T ₈ ; They tire quickly and their attention is easily lost [8]. T ₂ , T ₆ , T ₉ ; They don't want to participate in activities over time as they are behind their friends [9].
Difficulties relating to mathematic lessons	Comprehension	T ₂ , T ₃ , T ₅ , T ₆ , T ₈ , T ₉ , T ₁₀ ; As understanding what they read is a problem, they have difficulty solving mathematic problems [3]. T ₃ , T ₉ , T ₁₀ , T ₁₁ ; They have difficulty understanding directions related to lessons [11].
	Abstract concepts	T ₅ , T ₆ , T ₇ , T ₁₀ ; They have difficulty learning abstract concepts like "time" [5]. T ₅ , T ₈ ; They have difficulty learning number concepts [8]. T ₆ , T ₇ ; They have difficulty learning topics like measurements especially [7].

When the opinions of teachers relating to difficulties encountered by students starting school early in 1st class Turkish lessons are investigated, difficulties were identified as learning to read late, writing, expressing themselves and understanding what was said. Teachers were of the opinion that in mathematic lessons the younger students had difficulties with problem solving, time, numbers and measurement concepts.

The opinions of teachers relating to difficulties encountered in 4th class Turkish and mathematic lessons by students starting school early are presented in Table 15.

Table 15. Teachers' opinions of difficulties in Turkish and mathematics lessons in 4th class encountered by students beginning school early

Themes	Codes	Opinions
Difficulties relating to Turkish lessons	Writing	T ₃ , T ₁₀ ; They lack in terms of legible hand writing [3]. T ₁ , T ₂ , T ₆ , T ₁₀ ; Their ability to express emotions and thoughts in writing is not at sufficient levels [10].
	Reading comprehension	T ₁ , T ₂ , T ₆ , T ₁₀ ; They have difficulty in making and understanding interpretations. They mention situations not related to the topic [2]. T ₂ , T ₃ , T ₅ , T ₇ , T ₁₀ ; They give wrong answers when finding the main idea of a story and in answering questions relating to the text [7].
Difficulties relating to mathematics lessons	Problem solving	T ₁ , T ₂ , T ₃ , T ₆ , T ₁₀ ; Their problem solving is insufficient. For example, when solving problems in class they have difficulty understanding without making it tangible by visualizing or drawing figures [10]. T ₁ , T ₅ , T ₁₀ ; They are slower in completing mathematical processes [4].
Mathematics and Turkish	Effort	T ₈ , T ₉ , T ₁₁ ; They have to work harder compared to older age groups. If they started school a year later they would be less tired [9]. T ₅ , T ₆ , T ₉ ; They are unenthusiastic about lessons and give up quickly [6].

As seen in Table 15, teachers were of the opinion that students starting school at an early age were weak in terms of legible writing and written expression skills and had difficulty with reading comprehension in Turkish lessons. In mathematic lessons they believed these students had difficulty with problem solving and completing mathematical processes. In both lessons these children were not enthusiastic and had to work much harder than students in the older age group.

The opinions of teachers related to self-esteem and academic self-esteem of children who started school early are presented in Table 16.

Table 16. Teachers' opinions of self-concept of students beginning school early

Themes	Codes	Opinions
Self-esteem	Self-confidence	T ₁ , T ₂ , T ₄ , T ₅ , T ₆ , T ₇ , T ₈ , T ₉ , T ₁₀ , T ₁₁ ; When determined, ambitious responsible children see older children complete every task without difficulty they experience frustration [6].
	Motivation	T ₁ , T ₁₀ , T ₆ ; They want continuous interest. They still expect rewards for every small success [1]. They want to talk every tiny problem over for ages and they need me to give them motivation [10].
	Shyness	T ₁ , T ₆ , T ₄ ; They act shy about expressing themselves. They cry when explaining their problems [4]. T ₉ , T ₈ , T ₁₀ ; They experience adaptation problems in social settings [8].
	Unhappiness	T ₆ ; When they fail in lessons they think they are not liked by teachers and friends [4]. T ₉ , T ₁₀ ; They are unhappy due to anxiety about completing their own expectations [10].
Academic self-concept	General success belief	T ₁ , T ₂ , T ₃ , T ₄ , T ₆ , T ₅ , T ₇ , T ₁₁ ; The students beliefs about their success are damaged over time [6]. Unfortunately we've lost this generation of students, their belief in success is gone [4].
	Mathematic lesson success belief	T ₁ , T ₂ , T ₅ , T ₁₁ ; As they understand topics later than their friends, their belief in success weakens [5].
	Turkish lesson success belief	T ₁ , T ₂ , T ₅ , T ₁₁ ; They don't want to read long texts. They can't concentrate in class for long periods. So their Turkish academic self-concept is lower compared to the older age group [5].

According to the findings of the interviews, teachers were of the opinion that students who began at 60-66 months had low self-esteem, were unhappy/anxious in school and required continuous external motivation. According to the obtained findings, teachers stated that students who began at 60-66 months experienced anxiety about failure, had lower academic self-concept compared to the older age groups, felt insufficient and acted shy about participating in class.

4. Discussion and Results

Based on the variable of age starting school of 4th class students, there was no significant difference in Turkish and mathematic lesson success; however as age starting school increases it was found that Turkish and mathematic lesson success increased. According to teachers, students who began school early had difficulty with learning to read late, writing, communication and reading comprehension in Turkish lessons and in problem solving, understanding directions in class and abstract concepts like time and measurement in mathematic lessons. According to teachers, the Turkish and mathematic lesson success of students who started school early was lower compared to older students and by 4th class this difference was mostly still present or students had to display much more effort to reduce this difference. Fourth class students who started early still had difficulty in reading comprehension and answering questions on the text in Turkish lessons and in problem solving and mathematical processes in mathematic lessons. The findings obtained from the quantitative dimension of the research support the results obtained from teacher opinions. According to teacher opinions, age starting school is very important in terms of completing development to reach school maturity and is the most important factor affecting academic success.

Research by Tymms *et al.* (2000) compared the mathematic and reading skills of children born in summer and winter seasons and concluded that older children were more successful. Research in the literature (Byrd *et al.*, 1997; Daniel, Shorrocks-Taylor & Redfern, 2000; Fredriksson & Öckert, 2006; Graue and DiPerna, 2000; May *et al.*, 1995; Sharp & Hutchison, 1997) emphasizes that students who start school early are disadvantaged for school success compared to older age groups. These results are not surprising, because in the childhood period 6 months can affect developmental level by a large degree and this is reflected in school success. With this implementation in the 2012-2013 academic year in Turkey, children with nearly 2-2.5 year age difference received the same education program in the same class. In addition to age difference affecting academic success, it was necessary to investigate its effect on academic self-concept and self-esteem.

According to the results of the research, students who registered at 60-66 months were significantly different in terms of Turkish and mathematic lesson academic self-concept in favor of older age groups. When teacher opinions are investigated, they concluded that as younger students completed duties later compared to older students their self-confidence was damaged, their attention waned quickly and they experienced frustration. The results of the quantitative dimension of the research support the teachers' opinions. According to teachers, it was wrong to teach them in the same class as older students as students who began school younger experienced feelings of failure. The teachers' opinions are in line with the "big fish-little pond effect" of Marsh *et al.* (Marsh & Parker, 1984; Marsh, Chessor, Craven, & Roche, 1995) where being a large fish in a small pond (talented student in normal reference group) has more positive effect on academic self-concept than being a small fish in a large pond (talented student in talented reference group).

Many studies in the literature support the research findings. Success or failure at reading in the first years of school forms the basis of academic success (Morris, 1990; Lee & Jonson-Reid, 2016) and generally years later the academic success of these students who failed reading is weaker (Cunningham & Stanovich 1997). The reading success in the first years of school also affects the academic self-concept (reading self-concept) of students (Aunola *et al.*, 2002; Chapman & Tunmer, 1997; Liew *et al.*, 2008; Quirk *et al.*, 2009; Viljaranta *et al.*, 2016; Wigfield & Guthrie, 1997; Wilson & Trainin, 2007). In this research, teachers thought that students starting school early were insufficient at reading in first class and by fourth class this difference compared with older groups was still present. This negatively affects Turkish academic self-concept. A similar situation is present for mathematic lessons. Marsh *et al.* (2005) concluded that academic output affected the mathematic self-concept of 7th class students. Teachers stated that as reading skills were lacking in students who started school early this affected success in mathematic lessons.

Students have high academic self-esteem when they start school (Bouffard *et al.*, 2003; Eccles *et al.*, 1993); however during the school years this reduces or remains the same. Generally student success is affected by the feedback they receive from teachers and their sufficiency displayed during activities in class (Boufford *et al.*, 1998; Graham, 1990; Natale *et al.*, 2009; Spinath & Spinath, 2005). As in this research, Upadyaya & Eccles (2015) concluded that students who teachers assessed as failures had low mathematic and reading academic self-concepts.

According to the results obtained from the quantitative dimension of the research, self-esteem did not differ based on age starting school. According to teachers, students who started school early had lower self-esteem. According to mean points, the self-esteem of students who began school at 60-66 months was low. However, while high self-esteem was expected from the group of students who started school aged 72 months and above, the highest self-esteem points were obtained by students who started school at 66-72 months. According to teachers, when

students who began school at 60-66 months feel insufficient in class they think they are not liked; this causes unhappiness in school and negatively affects self-esteem. The correlation between self-esteem and academic success does not mean that high self-esteem causes good performance. However academic success at school affects the formation of self-esteem (Baumeister *et al.*, 2003; Coopersmith, 1967; Daniel & King, 1995).

The research identified a positive correlation between Turkish and mathematic lesson success and Turkish and mathematic academic self-concepts and self-esteem. When teachers' opinions are investigated, student's belief in success is damaged due to reasons such as finishing class activities later compared to older age groups. If students who began school early are considered to have low Turkish and mathematic lesson success, academic self-concept and self-esteem compared to older age groups, the registration of students aged 60-66 months in Turkey caused negative results for these students. But it is emphasized that one of the most important aims of educational policies should be to develop and maintain positive self-concept (Marsh *et al.*, 1995).

The quantitative dimension of the research investigated the effect of parental educational level on Turkish and mathematic lesson success and identified significant differences. In terms of paternal education, those with fathers who graduated primary school had lower lesson success compared to students with fathers who graduated from middle school, high school, university and postgraduate education. Additionally, students with fathers who graduated from middle school had lower success than those with fathers who graduated from high school. As paternal educational level increases, it may be said that Turkish and mathematic lesson success increases.

For maternal educational level, the Turkish lesson success of students was lower for those with mothers who are primary and middle school graduates compared to those with mothers who graduated from high school. However, unexpectedly, there was no difference for those with mothers who graduated university, so success was lower in terms of mean points. A similar situation is valid for mathematic lessons. Students with mothers who graduated high school had higher mathematic lesson success compared to those with mothers who graduated primary and middle school. However, students with mothers who graduated university had lower mean points for mathematic lesson success and the success of those with mothers who graduated high school was higher. This unexpected situation may be explained as follows high school graduate mothers are educated but generally they don't work so they are able to concern themselves with their children's education. University graduate mothers have high educational level; however as they usually work they may be able to devote less time to their children's education or other factors affecting the success of these students may be dominant. In the literature (Davis-Kean, 2005; Dursun & Dede, 2004; Gelbal, 2010; Hill *et al.*, 2004; Okagaki & Frensch, 1998; Stevenson & Baker, 1987), there are studies showing that parental educational level affects lesson success. These studies generally show that students with high parental educational level have higher lesson success.

According to the results of the study, in spite of Turkish and mathematic lesson academic success increasing as age starting school increases, it was concluded that Turkish and mathematic lesson academic success did not differ based on age starting school. It was concluded that academic success differed based on parental educational level. Gürsakal (2012) found that there was a negative correlation between age starting school and academic success in Turkey's 2009 PISA results, but as parental educational level increases academic success increases. According to these results, parental educational level is a more dominant variable for academic success compared to age starting school.

In light of the results of the study, the following recommendations are made;

- In situations where changes are made to the age starting school, care should be taken that children with an age difference (month) do not receive education in the same class.
- Students who begin school earlier than their peers should be given support education to increase academic success and guidance services to prevent negative effects on academic self-concept and self-esteem.
- Students with parents who have low educational levels may be given support education.

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Note

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