




# Analysis of Science-Based Entrepreneurship Skills and Parents' Academic Achievement Pressure and Support of Primary School Students

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## ABSTRACT

This study aims to examine whether there is a relationship between the academic achievement pressure and support of parents and students' science-based entrepreneurship and how these variables change in terms of parents' activities with their children. For this purpose, one of the quantitative research approaches, the descriptive survey method, was used in the study. 142 students from 3 different primary schools in Erzurum province participated in the study, using the appropriate sampling method. Demographic information questionnaire, Parental Academic Success Pressure and Support Scale (PASPSS), and Science-Based Entrepreneurship Scale (SBES) were used as data collection tools in the study. The data obtained from the participants were analyzed with the SPSS 26.0 package program. As a result, the science-based entrepreneurship levels of the students change in terms of the length of time the parents study with their children and participate in social sports activities. The pressure on their children's academic success is enhancing in terms of parents' children spending time in the digital environment while studying. On the contrary, the higher their children's educational expectations, the more they support their academic success. Finally, weak and intermediate relationships were determined regarding students' science-based entrepreneurship, parental academic achievement pressures, and support.

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Keywords:

Entrepreneurship, parental success pressure, parental success support, primary school students

## 1. Introduction

In the 21st Century, the development indicators of the countries are measured by the power in the field of production, innovation, communication industry, and knowledge. In this context, entrepreneurship is the most important trigger of these factors (Pan & Akay, 2015). Because labor, capital, raw materials and entrepreneurship are the basis of the factors of production that play the role of the determinant of economic indicators. Considering that today there is a transition from the industrial age to the information age, the effects of the physical efforts of individuals on the economy are decreasing, while the effects of thoughts and ideas are increasing rapidly. Entrepreneurship is also at the basis of these activities in terms of thought and idea (Balaban & Özdemir, 2008).

In the literature, two different views are dominant in defining entrepreneurship and placing it within a certain framework. The first of these is to introduce new products and technology to the market by discovering, making and living, producing, where economic factors are at the forefront. The second is an entrepreneurship definition that is evaluated in terms of education. Here, it is evaluated as a set of behaviors that take risks, approach knowledge and derivatives with a creative eye, and value orientation and the individual's attachment (Kapu, 2004). If the educational dimension of entrepreneurship is emphasized, this acquisition has started to show its effect in the last training programs in the last 15-20 years (Khan, 2011). The population

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throughout the world is constantly increasing. In this respect, it is observed that there is an increase in the unemployment rate, especially in a country where there is a continuous upward trend in the proportion of young population like Turkey. TSI (2020), the number of unemployed in Turkey was announced as 4 million 362 thousand according to the report. Considering this number, the importance of gaining the entrepreneurship factor that comes to the fore in contemporary education becomes evident (Oganisjana, 2011). Because this skill can be gained in the educational environment (Azizi, 2003), this acquisition requires that economists not only focus on this issue in other fields (European Commission, 2013). In this respect, training on entrepreneurship in education and training programs has gained importance and this type of skill has been included in programs (Ministry of National Education [MoNE], 2013; 2017).

Curth (2011) categorized entrepreneurship-related traits under two headings: characteristics that include knowledge and skills and affective behavioral characteristics. The characteristics that include knowledge and skills are (i) defining activities and taking advantage of opportunities, (ii) analyzing resources, (iii) making and managing projects, (iv) taking risks when necessary, (v) effective communication skills and the like. Behavioral and affective characteristics: (i) being fond of freedom, (ii) motivation for success, (iii) taking responsibility, (iv) being determined in their work, (v) high level of motivation, (vi) being ambitious, (vii) cooperating and so on. On the other hand, Yılmaz and Sünbül (2009) should have characteristics such as courage, original thinking, openness to change, cooperation in their work, willingness to work, and flexibility for an individual to be a successful entrepreneur. Considering that the focus is on students' success in educational settings, these characteristics that entrepreneurship will bring to the individual help the individual develop and be successful in multiple ways (Arıkan, 2002).

The most important social environment of the children is the school environment and their parents. In this respect, children tend to behave like them when they spend with their parents and resemble their parents' beliefs (Freedman et al., 2003). Parents play an important role in eating habits, science, music, cinema, and sports (Öztürk, 1998). The effects of parents, who are pioneers in shaping their children, during their teaching activities are also very important. Parents' helping their children with science homework and questions, studying together, and encouraging them to learn the lesson are factors that increase success (Çakır et al., 2007). Similarly, the success of international students in the PISA assessment program in Turkey is due to the demographic characteristics of parents, one of the issues that affect students' academic performance in the private sector (Anıl, 2009). Most parents desire the success of their children in educational settings. In this respect, they try different ways for their children to be successful. In this respect, they can sometimes support their children while they pressure them. Parents' desire for their children to work more, compare them with their friends, and find their success insufficient may have negative consequences. In this table, these behaviors exhibited by parents are defined as parental success pressure (Kapıkıran, 2016). When their children perceive this pressure created by parents, academic success decreases (Campbell & Verna, 2007; Ma, 2003). On the other hand, the parents of the children; support their work, use positive reinforcers in their success, and have confidence in their abilities and the support of parents for success. These supports have a positive effect on students' learning motivation and performance (Gonzalez-DeHass et al., 2005; Kapıkıran & Özgüngör, 2009; Kim & Park, 2006). The most important practice that parents have done to help their children in their home environment is homework. In this process, parents help their children to reinforce their knowledge and increase their performance by asking various questions (Xu, 2010; Xu et al., 2017). However, in these practices, which parents think are supportive of their children, unwittingly or unintentionally, aids can turn into pressure, resulting in negative consequences (Hill & Tyson, 2009).

Considering all the mentioned situations, entrepreneurship and parents' pressure and support on their children play an important role in education and training environments. This study tried to determine whether there is a relationship between the academic success pressure and support of parents and students' science-based entrepreneurship and how these variables change in terms of parents' activities with their children. This study is an original study with the variables investigated and its findings. Accordingly, the problem set of the study is the extent to which the relationship between academic achievement pressure and parental support of elementary students and their science-based entrepreneurship and how these variables change with respect to parental practices as determined. Research questions guiding the research consistent with the problem statement: Primary school students;

- Do PASPS and SBES scores differ from students' parents in terms of daily study time?

- Do PASPS and SBES scores differ in terms of the time students spend with their parents on social and sports activities?
- - Does the amount of time parents spend in digital environments while their children are in university affect PASPS and SBES scores? Does the level of parents' expectation from their children's education life have an effect on PASPS and SBES scores?
- Is there a relationship between students' PASPS and SBES scores?

## 2. Methodology

### 2.1. Research Model

This study used a survey method based on a descriptive model from quantitative research approaches. Survey method is an appropriate method in terms of determining and interpreting the characteristics of the sampling (Büyüköztürk et al., 2008). In addition, this method ensures that healthy comparisons between groups are made, and the relationship levels between variables are determined (Cohen et al., 2005; Karasar, 2013).

### 2.2. Research Sample

The study sample consisted of 142 students studying in three primary schools in Yakutiye district of Erzurum province. In the study, an appropriate sampling method was used, in which the principle of easy accessibility was considered. In this respect, students studying in these schools were reached after obtaining the necessary permissions from the relevant district's National Education Directorate. Other demographic characteristics of the sample are presented in Table 1.

**Table 1.** Demographic Information about the Sample

Daily study times with their parents	Frequency	Percent (%)
Nothing	54	38.0
0-30 minute	26	18.3
30 minute-1 hour	25	17.6
1-2 hours	23	16.2
2 hours and over	14	9.9
Weekly time allocated to sports and cultural activities with parents		
Nothing	46	32.4
2-3 hours	18	12.7
3 hours and over	78	54.9
Students 'parents' spending time on TV or digital media while studying disrupts their concentration		
Yes	46	32.4
Partly	43	30.3
No	53	37.3
Parents' expectation from their children's education life		
High school graduate	5	3.5
University degree	45	31.7
Post graduate	92	64.8
Total	142	100

### 2.3. Data Collection Tools

#### 2.3.1. Demographic Information Questionnaire

The demographic information survey prepared by the researcher aimed to determine some characteristics of the parents in terms of some variables. In this context, students were asked about daily study time with their parents, time spent with their parents on sports and social activities, whether their parents spend time on TV or digital media while studying, which affects their concentration, and their children's expectations of educational life. It was aimed to give reliable answers to the questions posed to the students by making the necessary explanations that the answers they gave to the students would be confidential.

### **2.3.2. Parental Academic Success Pressure and Support Scale**

The Parental Academic Achievement Pressure and Support Scale (PASPSS) developed by Kapıkıran (2016) aims to measure the success pressures and support of parents of middle school and high school students. Measuring two sub-dimensions, namely academic success pressure (10 items) and support (5 items) of parents, the scale consists of 15 items. The fit indices obtained as a result of the confirmatory factor analysis for secondary school students were reported as RMSEA = .06, SRMR = .06, CFI = .96 and GFI = .94. The five-point Likert type (1- I totally disagree, 5- I totally agree) scale's internal consistency coefficients are the academic success of the parents; edition, .71 for support, .82 for all items. In this study, 3 language experts, 1 scale developer and 2 classroom teachers were presented to determine whether the items on the scale were understandable by primary school students. In addition, the scale was read to 7 primary school students, and the places they did not understand were asked. In this process, there was a consensus that the scale was suitable for the students' level and that it was understandable. Afterward, the scale was applied to 191 primary school students different from the main study. Confirmatory factor analysis was performed based on the answers received and the fit indices were determined as follows:  $\chi^2 / df = 61$  ( $p < .01$ ), RMSEA = 0.07, S-RMR = 0.08, AGFI = 0.87, GFI = 0.95, IFI = 0.81 and CFI = 0.84. The internal consistency coefficients performed within the scope of this study are as follows: parents' academic success; pressure sub-dimension was calculated as .83, support dimension as .80, and the Cronbach alpha value for all items was calculated as .84. In addition, it was determined that the scale scores of the students in the upper and lower 27% slice were statistically significant ( $p < .05$ ). These findings are an indication that the scale is reliable and valid.

### **2.3.3. Science-Based Entrepreneurship Scale**

Science-Based Entrepreneurship Scale (SBES), developed by Deveci (2018), consists of 13 items with a five-point Likert structure (1-Strongly disagree, 5-Strongly agree) Scale; It includes the sub-dimensions of risk taking, need for success, teamwork and effective communication. The values obtained from the confirmatory factor analysis were stated as RMSEA = .059, CFI = .95, S-RMR = .047, NNFI = .94, GFI = .95. These values indicate that fit indices support the factor structure. The researcher calculated the internal consistency coefficient for the items in the scale as .83. Within the scope of this study, 3 language experts, 1 scale developer and 2 classroom teachers were asked to determine whether the scale items were understandable by primary school students. In addition, the scale was read to 7 primary school students, and the places they did not understand were asked. In this process, there was a consensus that the scale was suitable for the students' level and that it was understandable. Afterward, the scale was applied to 177 primary school students different from the main study. Confirmatory factor analysis was performed on the answers received, and fit indices were determined as follows:  $\chi^2 / df = 56$  ( $p < .01$ ), RMSEA = 0.07, S-RMR = 0.05, AGFI = 0.91, GFI = 0.92, IFI = 0.80 and CFI = 0.82. In addition, the Cronbach's alpha of the items supporting the values found by the researcher in this study was calculated to be .77. In addition, it was found that the scale scores of the students in the top and bottom 27% slices were statistically significant ( $p < .05$ ). These results are an indication that the scale is reliable and valid. Findings

Firstly, the indicators stated by Pallant (2016) were taken as a reference to determine whether the answers given by the students to the scales were normally distributed. In this respect, it was determined that the kurtosis and skewness values of the responses given to both PASPSS and SBES were between +/- 2 values, the Kolmogorov-Smirnov test results were  $p > .05$ , and the histogram and detrended graphics were close to normal distribution. In this respect, it was concluded that parametric tests and correlation tests are appropriate.

## **2.4. Ethical**

The data of the study were collected in 2019. Necessary permissions were obtained to use data collection tools applied within the scope of the research. Data collection tools were administered to the participants to be used in the research, and no additional information that would not be used in the research was included.

## **3. Findings**

### **3.1. Findings Regarding the First Research Question**

Do PASPS, PASSS, and SBES scores differ from the students' parents in terms of their daily study time? A one-way ANOVA test was used to access the findings for the question.

One-way ANOVA test results, which determine how the mean scores of the PASPSS and SBES differ in terms of the duration of studying with the parents, are presented in Table 2.

**Table 2.** *One-way ANOVA Test Results Determining How The Mean Scores of PASPSS and SBES Differ in Terms of Duration of Studying with Parents*

Variable	Source of Variance	Sum of Squares	df	Mean Square	F	p	Difference
PASPS mean scores	Between groups	11.26	4	2.81	3.43	.01	Nothing>1-2 hours
	Within groups	112.30	137	.82			
PASSS mean scores	Between groups	6.84	4	1.71	2.38	.05	-
	Within groups	98.20	137	.72			
SBES mean scores	Between groups	6.28	4	1,57	4.35	.00	2 hours and above>Nothing
	Within groups	49.37	137	.36			

When Table 2 is analyzed, while the duration of studying with their children and parents made a significant difference in terms of mean scores of PASPS and SBES, it did not make a significant difference in terms of mean scores of PASSS. In other words, students who never studied with their parents had more parental pressure than students who studied with their parents for 1-2 hours. On the other hand, there is no difference in terms of parental support and study duration with students' parents. Finally, the science-based entrepreneurship levels of students who study with their parents for 2 hours or more are significantly higher than those who have never studied. Although there is a difference between the other groups in favor of 2 hours or more, these differences are not significant.

### 3.2. Findings Regarding the Second Research Question

Do PASPS, PASSS, and SBES mean scores differ on the amount of time students spend with their parents on social and sports activities? A one-sided ANOVA test was used to obtain the results for the question. The findings obtained from the analysis are presented in Table 3.

**Table 3.** *One-way ANOVA Test Results Determining How The Mean Scores of PASPSS and SBES Differ in Terms of Time Spent on Social and Sports Activities with Parents*

Variable	Source of Variance	Sum of Squares	df	Mean Square	F	p	Difference
PASPS mean scores	Between groups	14.40	2	7.20	9.17	.00	Nothing>2-3 hours
	Within groups	109.16	139	.78			Nothing>3 hours and above
PASSS mean scores	Between groups	17.67	2	8.83	14.05	.00	2-3 hours>Nothing
	Within groups	87.37	139	.63			3 hours and above>Nothing
SBES mean scores	Between groups	3.54	2	1,77	8.39	.00	2-3 hours and above>Nothing
	Within groups	29.37	139	.21			3 hours and above>Nothing

When Table 3 is examined, as the time that parents spend with their children for social sports activities increases, the pressure of success decreases, and the support of parents increases. In this respect, the parental success pressure on children who participate in social sports activities with their parents for at least 2-3 hours is decreasing. On the other hand, students' science-based entrepreneurship levels also differ regarding their participation in social sports activities with their parents. The science-based entrepreneurship levels of students who devote more time to social sports activities with their parents are increasing.

### 3.3. Findings Regarding the Third Research Question

Does the amount of time parents spend in digital environments while their children are in university affect PASPS, PASSS, and SBES scores? One-way ANOVA test was used to access the findings for the question. The findings obtained from the analysis are presented in Table 4.

**Table 4.** One-way ANOVA Test Results Determining How Parents' Mean Scores of PASPSS and SBES Differ in Terms of The Time Their Children Spend on Digital Media While Studying

Variable	Source of Variance	Sum of Squares	df	Mean Square	F	p	Difference
PASPS mean scores	Between groups	10.39	2	5.19	6.38	.00	Yes>No
	Within groups	113.18	139	.81			
PASSS mean scores	Between groups	2.73	2	1.36	1.85	.16	-
	Within groups	102.31	139	.74			
SBES mean scores	Between groups	.42	2	.21	.90	.41	-
	Within groups	32.49	139	.23			

When Table 4 is examined, it is seen that parents whose children spend time on TV or digital media while studying distract their children more and their academic achievement pressure levels are higher. On the other hand, parents whose children spend or do not spend time in digital environments while studying, do not make a difference on their children's academic success and science-based entrepreneurship scores.

**3.3. Findings Regarding the Fourth Research Question**

Does the level of parents' expectation from their children's education life affect the PASPS, PASSS, and SBES scores? One-way ANOVA test was used to assess the findings for the question.

**Table 5.** One-way ANOVA Test Results Determining How Parents' Mean Scores of PASPSS and SBES Differ in Terms of The Expectation Level of Their Children from Education Life

Variable	Source of Variance	Sum of Squares	df	Mean Square	F	p	Difference
PASPS mean scores	Between groups	.26	2	.13	.15	.86	-
	Within groups	123.30	139	.89			
PASSS mean scores	Between groups	6.03	2	3.01	4.23	.02	Post graduate>High school University > High school
	Within groups	99.01	139	.71			
SBES mean scores	Between groups	.127	2	.63	.279	.06	-
	Within groups	31.64	139	.23			

When Table 5 is examined, as the expectation level of the parents from their children's education life increases, their academic achievement support for their children increases significantly. Especially parents who want their children to study at the graduate and undergraduate levels provide more support to their children. On the other hand, the academic success pressure of parents and science-based entrepreneurship levels of students do not change in terms of parents' expectations of their children's educational life.

**3.3. Findings Regarding the Fifth Research Question**

Is there a relationship between students' PASPS, PASSS, and SBES scores? Pearson correlation test was conducted to assess the findings regarding the question. Cohen (1988) standards were used to compare relationship levels. In this respect, the correlation value between .10-.29 indicates a weak relationship between .30-.49, and a strong relationship between .50 and above.

Within the scope of this study, the relationship levels between PASPS, PASSS and SBES are given in Table 6.

**Table 6.** Relationship Between Students' Mean Scores of PASPS, PASSS and SBES

		PASPS	PASSS	SBES
PASPS	Pearson Correlation	1		
	Sig. (2-tailed)			
PASSS	Pearson Correlation	-.37**	1	
	Sig. (2-tailed)	.00		.00
SBES	Pearson Correlation	-.13	.24**	1
	Sig. (2-tailed)	.13	.00	

\*0.05 \*\*0.01 level (2-tailed).

When the table is examined, it is seen that there is a moderate negative relationship between the academic achievement pressure of parents and academic achievement support. A weak relationship was found between

science-based entrepreneurship skills and parents' academic achievement pressure and support. All of these determined relationships are statistically significant ( $p < .05$ ).

#### 4. Conclusion and Discussion

This study tried to determine whether there is a relationship between the academic achievement pressure and support of parents and students' science-based entrepreneurship and how these variables change in terms of parents' activities with their children. When the findings obtained from the research were evaluated, the following results were obtained.

- Parents who have never studied with their children put more academic success pressure on their children. On the other hand, it was determined that the children of parents who study with their children for 2 hours or more per day have more entrepreneurial skills (See Table 2). In line with these findings, parents helping their children with their lessons enables them to have more entrepreneurial skills. It can be said that parents who do not help their children's lessons at all are more judgmental and put pressure on their children by blaming them.
- Parents who devote more time to social sports activities with their children give more support to their children's academic success. In addition, this situation increases the entrepreneurship level of the students (See Table 3).
- Parents whose children spend time in the digital environment while studying put academic success pressure on their children (See Table 4). This reveals that while students are studying, parents should not spend time on digital media such as TV and the internet.
- As the level of parents' expectations from their child's education increases, their support for their children's academic success increases. In this respect, parents who expect their children to have a high-level education life tend to give them all kinds of support, although they say they will be successful and trust their children. However, parents' expectations for their children's education did not affect their academic achievement pressure or entrepreneurship.
- Finally, while there is a moderate negative relationship between academic achievement pressure and the support of parents, there is a weak relationship between the other variables. In other words, parents who state that they would be successful and congratulate their children on their successes avoid behaviors such as constant warning and comparing the child with their friends and siblings.

Although entrepreneurship guides the economic programs of countries, it has also been addressed in social platforms recently. Turkey also included entrepreneurial skills to create in the curriculum, so the effect is given with emphasis on entrepreneurial skills. In this context, recent studies to determine entrepreneurial skills in schools, particularly in Turkey, has increased (Deveciler 2018; Deveciler & Çepni, 2014; Pan & Akay, 2015; Wolf & Bay, 2019). On the other hand, it has been determined that parents' interests in the educational process of their children and their academic success expectations are effective on success (Phillipson & Phillipson, 2012). It is very important for parents to talk about the school situation of their children, help them with homework, and make their children feel their expectations (Wilder, 2014; You, Lim Sun, No & Dang, 2016).

Parental influence is an important factor affecting students' academic achievement. In this respect, the discussion of science-based entrepreneurship with the success pressure and support of parents in terms of demographic variables determined over the general condition of the parents will make significant contributions to the literature. When the relevant literature was examined, Kurt and Bayar (2019) examined the relationship between science-based entrepreneurship and self-efficacy in their study. They examined how the entrepreneurship levels of students affect the educational status of parents. As a result, it was determined that as the parents' education level increased, their children's entrepreneurship level increased. Studies indicate that parents' interaction with their children affects their children's entrepreneurship levels (Fitzsimmons & Douglas, 2011; Obschonka & Stuetzer, 2017). In these studies, it was emphasized that the personality structures of parents are effective on their children's entrepreneurship levels. Although the entrepreneurship levels of parents are not examined within the scope of this study, ultimately, their views and behaviors about their children's academic life affect the students' entrepreneurship.

It is possible to come across studies examining the relationship between the socioeconomic status of parents and the entrepreneurship levels of students. While Bhandri (2006) stated that the socioeconomic status of parents did not have an impact on their children's entrepreneurship, Hurst and Lusardi (2004) emphasized

the existence of a strong relationship between socioeconomic status and entrepreneurship. Similarly, the effect of entrepreneurship on learning outcomes (Johansen, Skålholt & Schanke, 2008), the effect of entrepreneurship training given to university students on their tendency to become a businessperson (Lautenschläger & Haase, 2011), students' motivation (Oosterbeek, van Praag & Ijsselstein) and perceptions. (Peterman & Kennedy, 2003) It is possible to come across studies examining its effect on it. This study provides a different perspective to the literature in determining how primary school students' entrepreneurship has changed in terms of the quality of time they spend with their parents.

Another subject that this study investigates is parental characteristics that affect the academic success pressure and support of parents. Many studies indicate that parents are effective on students' academic achievement (Cheng, 2009; Çelenk, 2003; Davis-Kean, 2005; Driessen et al., 2005; Topor et al., 2010; McNeal, 2014) . In these studies, it is stated that parents' interest in their children's lessons and their efforts increase their success. In this context, this study contributes to the literature by determining the factors that affect the pressure and support strategies that trigger the parents' desire for success.

Limitations and recommendations for further study are as follows: This study was limited to studying in Turkey's three primary schools in one province, and 142 students received data. In this context, the data obtained from different sample groups and from this study can be tested. In addition, by using different demographic variables that affect students' entrepreneurship levels and parental support, the reasons affecting these variables can be explained in a broader framework. The methods of obtaining this skill can be explained by conducting an experimental study to obtain students' entrepreneurial skills, which are considered high-level skills. In addition, by conducting a similar study on elementary and high school students, it can be determined if the variables that influence entrepreneurship and the pressure to succeed and support from parents have changed.

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