A Study on Variables that Affect Class Scores of Primary Education Students in Placement Test

Mustafa YAVUZ

ABSTRACT. This study aims to determine the variables that predict class scores which are obtained by adding 70 % of the Placement Test (PT) scores of the primary education sixth and seventh grade students who took it for the first time in the 2007-2008 academic year within the framework of the system of passing to secondary education reorganized by the MNE, 25 % of their end-of-the-year passing grades. The study is of general survey model. The study group consists of students who took the PT in the 2008-2009 educational year. The study group of the study includes 329 primary education sixth graders and 319 seventh graders who were selected among different socio-economic status in Konya. As a result of the study, it was observed that the variables of “attending private teaching center (private teaching center that prepare students for examination) and duration of daily study” are predictors of the class scores of both primary school sixth and seventh graders. Another result of the study, the fact that the variables attending private teaching center and duration of daily study have similar significance for primary education sixth graders and seventh graders indicates that private teaching centers are effective on both class levels.

Key Words: Selection and placement test, private teaching center, mother, father education, parent income, duration of work

INTRODUCTION

Understanding the variables that affect students’ academic achievement is critical. There has been much research on the correlation of academic achievement and parenting styles (Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994; Attaway & Bray, 2004), socio-economic status (Goddard, Sweetland, & Hoy, 2000), teacher aids (Gerber & Fin, 2001), kinds of schools (Carpenter, 1985), perception of personal control (Stipek, 1981), efficiency of principals (Gentilucci, 2007), gender (Kelly, 1993), and locus of control (Bain & Boersma, 1983).

One of the indicators of academic success is the selection and placement test. In Turkey, central placement tests are administered when passing from primary education to secondary education and from secondary education to higher education. Ministry of National Education (MNE) has been administering a Placement Test (PT) since 2007-2008 academic year for passage to secondary education institutions. Students take these exams in the 6th, seventh and eighth years of primary education. 70 % of the scores obtained from the tests administered at the end of the sixth, seventh and eighth years of primary education, 25 % of students’ end-of-the-year achievement scores and 5 % of their behavior scores are added and a “Class Score” is obtained for each class (MNE, 2008). Moreover, of the class scores which will be obtained on the basis of performance in these three years, 25 % of the sixth year scores, 35 % of the seventh year scores and 40 % of the eight year scores are taken and thus “Placement Score for Secondary Education” is obtained. In the new system formed by the MNE in this manner, the purpose is to sustain students’ motivation for three years and make them feel that all school subjects are equally important in accordance with the spirit of primary education. Primary education six and seven graders took the PT for the first time in the 2007–2008 academic year.

It is believed that determining the variables that affect success in PT, which is administered to students to pass to secondary education, is important for all parties of the teaching-learning process. In addition, due to the fact that the new system of passing to secondary education has recently been initiated, the present study is regarded as important in aspect of obtaining the first data and guiding the practitioners. Therefore, this study aims to determine the variables that predict class scores which are obtained by adding 70 % of the PT scores of the primary education sixth and seventh grade students

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who took it for the first time in the 2007-2008 academic year within the framework of the system of passing to secondary education reorganized by the MNE, 25 % of their end-of-the-year passing grades and 5 % of their behavioral scores.

Findings of some studies indicate that primary education students study for about 11.7 hours a week to prepare for examinations and do their homework (for example; Wagner, Schober & Spiel, 2008). Studies conducted in this regard reveal a positive and linear relationship between academic success and the time students devote to study (Kember, 1995; Cooper, Valentine & Nye, 1999; Holmes & Croll, 1989; Farrow, Tymms, & Henderson, 1999). Therefore, the variable of “duration of daily study” was included in the study in order to determine whether duration of daily study was a predictor of the class scores of primary education sixth and seventh graders.

Parents and students consider it very important to be among the 49% accepted by selective high schools and to attend the College of Science Schools and Anatolian High Schools that are more successful than other non-selective schools at preparing students for the University Entrance Exam.

While there were 433,847 students in 1,664 private test prep courses in 1997, according to data from the Ministry of Education, only ten years later there were 1,122,861 students and 48,855 teachers in 4,031 private courses (MEB, 2007). The research has pointed out that the students give priority to such private courses while studying for the exams (Kelecioğlu, 2002; Turan & Alaz, 2007), and that the students attending these private courses have a more positive attitude than those who cannot attend (Karaer, 2007).

According to some research results, the more highly educated the mother is, the more the child matures in school, starting from preschool (Yazıcı, 2002). Much research states that students study efficiently if the mother is well educated (Bilgin, 1990; Yenilmez & Duman, 2008; Kotaman, 2008; Carneiro, 2008). The correlation of the father’s education and the student’s academic achievement is also positive (Yazıcı, 2002; Kotaman, 2008; Cabrera, Shannon, & LeMonda, 2007; Smith, Atkins, & Connell, 2003). However, the research results have some variance across different cultures. For instance, according to research done in Japan, highly educated mothers influence their daughters’ academic achievement, but not their sons’. The same research has shown that educated fathers improve academic achievement (Campell & Uto, 2002). In conclusion, the academic achievement of students who have highly educated parents is higher than those who do not.

Another variable affecting achievement on exams is family income. Research results have pointed out that the level of income has a positive effect on academic achievement (Yenilmez & Duman, 2008; Carneiro, 2008). However, some researchers have stated that income does not directly affect academic achievement, but affects the beliefs and attitudes of the family (Davis-Kean, 2005). When other variables in this study are combined with each other, academic achievement is positively correlated. For instance, the students from families with low incomes and low levels of education have lower academic achievement (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996).

**METHOD**

*Study Group*

The study is of general survey model. The study group consists of students who took the PT in the 2008-2008 educational year. The study group of the study includes 329 primary education sixth graders and 319 seventh graders who were selected among different socio-economic status in Konya. Personal information about the study group which was used in evaluation was obtained through a questionnaire form and then these students’ class scores were reached through the schools and private teaching centers which they attended. Data belonging to the sixth and seventh graders were analyzed separately in the study.

The following table shows the general characteristics of the participants including mother, father education, attending private teaching center, duration of daily study and family income.
Table 1: Study Group Profile

<table>
<thead>
<tr>
<th>Variables</th>
<th>6. grade</th>
<th>7. grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Primary School</td>
<td>195</td>
<td>59.3</td>
</tr>
<tr>
<td>Secondary School</td>
<td>60</td>
<td>18.2</td>
</tr>
<tr>
<td>High School</td>
<td>48</td>
<td>14.6</td>
</tr>
<tr>
<td>University (Assoc. and License Degree)</td>
<td>26</td>
<td>7.9</td>
</tr>
<tr>
<td>Primary School</td>
<td>132</td>
<td>40.2</td>
</tr>
<tr>
<td>Secondary School</td>
<td>58</td>
<td>17.9</td>
</tr>
<tr>
<td>High School</td>
<td>84</td>
<td>25.2</td>
</tr>
<tr>
<td>University (Assoc. and License Degree)</td>
<td>55</td>
<td>16.7</td>
</tr>
</tbody>
</table>

1. Mother Education
- University (Assoc. and License Degree): 26 (7.9%)
- Primary School: 132 (40.2%)
- Secondary School: 58 (17.9%)
- High School: 84 (25.2%)
- University (Assoc. and License Degree): 55 (16.7%)

2. Father Education
- University (Assoc. and License Degree): 55 (16.7%)
- Never attendance: 225 (68.4%)
- 1 year: 51 (15.5%)
- 2 years: 53 (16.1%)
- 1 hour: 40 (12.2%)
- 2 hours: 170 (51.7%)
- 3 hours: 81 (24.6%)
- 4 hours and +: 38 (11.5%)
- 0–400 TL*: 68 (20.7%)
- 401–800 TL: 83 (25.2%)
- 801–1200 TL: 82 (24.9%)
- 1201–1600 TL: 45 (13.7%)
- 1601–2000 TL: 21 (6.4%)
- 2001TL and +: 30 (9.1%)

*1TL= $0.70

From the table, it is observed that the parents of the primary sixth and seventh graders in the study group were predominantly primary school graduates that over 60% of the students did not attend a private teaching center, generally devoted 2 hours a day to studying and 70.8% of their parents had a monthly income of 1200 TL or below.

Data Analysis

SPSS 14.00 software was used for data analysis and frequencies and percentages of the data which were obtained from the study group were calculated; moreover, multiple regression analysis was conducted in order to reveal the effects of the predictive variables of the study on the students’ class scores.

FINDINGS

The results of the multiple regression analysis regarding prediction of students’ class scores according to the variables of mother’s level of education, father’s level of education, attending private teaching center, duration of daily study and the monthly income of the family are given in Table 2.

Table 2: The results of the multiple regression analysis regarding prediction variables of students’ sixth class scores

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>Bivariate r</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>274.74</td>
<td>13.13</td>
<td>-</td>
<td>20.91</td>
<td>0.00</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1. Mother level of education</td>
<td>5.71</td>
<td>4.44</td>
<td>0.08</td>
<td>1.28</td>
<td>0.20</td>
<td>0.29</td>
<td>0.07</td>
</tr>
<tr>
<td>2. Father level of education</td>
<td>6.70</td>
<td>3.69</td>
<td>0.11</td>
<td>1.81</td>
<td>0.07</td>
<td>0.29</td>
<td>0.10</td>
</tr>
<tr>
<td>3. Attending private teaching center</td>
<td>24.78</td>
<td>4.34</td>
<td>0.31</td>
<td>5.70</td>
<td>0.00*</td>
<td>0.41</td>
<td>0.30</td>
</tr>
<tr>
<td>4. Duration of daily study</td>
<td>14.15</td>
<td>4.21</td>
<td>0.16</td>
<td>3.35</td>
<td>0.00*</td>
<td>0.19</td>
<td>0.18</td>
</tr>
<tr>
<td>5. Family income</td>
<td>2.69</td>
<td>2.98</td>
<td>0.05</td>
<td>0.90</td>
<td>0.36</td>
<td>0.28</td>
<td>0.05</td>
</tr>
</tbody>
</table>

R=0.49  R²=0.24  F=19.49  p=0.00
It is understood from the results of the multiple regression analysis that there is a significant relationship between the predictive variables altogether (mother’s level of education, father’s level of education, attending private teaching center, duration of daily study and the monthly income of the family) and the student’s class score ($R=0.49$, $R^2=0.24$, $P<.01$). The five predictive variables altogether account for 24% of the total variance of the class score.

When the bivariate and partial correlations between the predictive variables and the predicted (dependent) variable are examined, it is observed that the class score has the highest correlation with “the time the student spends at the private teaching center” ($r=0.41$) and has the lowest correlation with “duration of daily study” ($r=0.18$). However, when the other variables are checked according to the results of partial $r$, it is observed that the correlation between the class score and predictive variables range from 0.05 and 0.30.

According to the standardized regression coefficient ($\beta$), the relative order of importance of the predictive variables on the class score is as follows; attending private teaching center, duration of daily study, father’s educational level, mother’s educational level and monthly income of the family. According to the $t$ test results regarding the significance of the regression coefficients, on the other hand, the variables of attending private teaching center and duration of daily study are significant predictors of the class score. It is observed that the variables of mother’s level of education, father’s level of education and monthly income of family do not have a significant effect on the class score.

According to the results of the multiple regression analysis, the regression equation regarding prediction of student’s class score is given below (mathematical model).

\[
\text{CLASS SCORE} = 274.74 + 5.71 \times \text{MOTHER’S LEVEL OF EDUCATION} + 6.70 \times \text{FATHER’S LEVEL OF EDUCATION} + 24.78 \times \text{ATTENDING PRIVATE TEACHING CENTER} + 14.15 \times \text{DURATION OF DAILY STUDY} + 2.69 \times \text{MONTHLY INCOME OF FAMILY}
\]

Table 3: The results of the multiple regression analysis regarding prediction variables of students’ seventh class scores

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>Std. Error</th>
<th>$\beta$</th>
<th>t</th>
<th>p</th>
<th>Bivariate $r$</th>
<th>Partial $r$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>281.50</td>
<td>13.09</td>
<td>-</td>
<td>21.49</td>
<td>0.00</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1. Mother level of education</td>
<td>7.78</td>
<td>4.19</td>
<td>0.12</td>
<td>1.85</td>
<td>0.06</td>
<td>0.33</td>
<td>0.10</td>
</tr>
<tr>
<td>2. Father level of education</td>
<td>2.96</td>
<td>3.71</td>
<td>0.05</td>
<td>0.79</td>
<td>0.42</td>
<td>0.29</td>
<td>0.04</td>
</tr>
<tr>
<td>3. Attending private teaching center</td>
<td>22.12</td>
<td>4.03</td>
<td>0.30</td>
<td>5.48</td>
<td>0.00</td>
<td>0.42</td>
<td>0.30</td>
</tr>
<tr>
<td>4. Duration of daily study</td>
<td>12.99</td>
<td>4.36</td>
<td>0.15</td>
<td>2.98</td>
<td>0.00</td>
<td>0.19</td>
<td>0.16</td>
</tr>
<tr>
<td>5. Family income</td>
<td>4.33</td>
<td>2.99</td>
<td>0.09</td>
<td>1.44</td>
<td>0.14</td>
<td>0.30</td>
<td>0.08</td>
</tr>
<tr>
<td>$R=0.49$</td>
<td>$R^2=0.24$</td>
<td>$F=(5,301)= 19.67$</td>
<td>p=0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results of the multiple regression analysis reveal a significant relationship between the predictive variables altogether and the student’s class score ($R=0.49$, $R^2=0.24$, $P<.01$). The five predictive variables altogether account for 24% of the total variance of the class score.

According to the bivariate and partial correlations between the predictive variables and the predicted variable it is observed that the class score has the highest correlation with “attending private teaching center” ($r=0.42$) and has the lowest correlation with “duration of daily study” ($r=0.19$). However, according to the results of partial $r$, when the other variables are checked, it is observed that the correlation between the class score and the predictive variables varies between 0.04 and 0.30.

According to the standardized regression coefficient ($\beta$), the relative order of importance of the predictive variables on the class score is as follows; attending private teaching center, duration of daily study, mother’s level of education, monthly income of family and father’s level of education. According to the $t$ test results regarding the significance of the regression coefficients, on the other hand, it is observed that the variables of attending private teaching center and duration of daily study are significant predictors of the class score. It appears that the variables of mother’s level of education, father’s level of education and monthly income of the family do not have a significant effect on the class score.
According to the results of the multiple regression analysis, the regression equation regarding prediction of student’s class score is given below (mathematical model).

\[
\text{CLASS SCORE} = 281.501 + 7.78 \text{ MOTHER’S LEVEL OF EDUCATION} + 2.96 \text{ FATHER’S LEVEL OF EDUCATION} + 22.12 \text{ ATTENDING PRIVATE TECH\text{\textregistered} CENTER} + 12.99 \text{ DURATION OF DAILY STUDY} + 4.33 \text{ MONTHLY INCOME OF FAMILY}
\]

**DISCUSSION AND CONCLUSIONS**

One of the objectives of the three-stage examination system which was introduced by the MNE in the year 2008 was determined as follows “with the restructured system of passage to secondary education, students’ performance at the end of the primary education will be determined through tests based on the teaching programme at the end of the sixth, seventh and eighth grades and thus students will be made to attach importance to their school and lessons”. As a result of the study, it was observed that the variables of “attending private teaching center and duration of daily study” are predictors of the class scores of both primary school sixth and seventh graders. This relationship between primary education sixth and seventh grade students’ attending the private teaching center and their class scores can be interpreted as an indication of the fact that private teaching centers have not lost their importance yet.

As a result of the study, the fact that the variables attending private teaching center and duration of daily study have similar significance for primary education sixth graders (β=0.31) and seventh graders (β=0.30) indicates that private teaching centers are effective on both class levels. In this sense, these two results may be taken to corroborate one another.

It is obvious that parents’ sending their children attending primary education to private teaching centers will inflict a financial burden on them. This situation can be considered a violation of equality of opportunity in education for children of families who cannot afford the financial burden of sending children to private teaching centers. However, one of the expected functions of education in a society is that it should enable social mobility (Fidan, Erden, 1998) and reduce to a certain extent the gap between classes by facilitating socio-economic mobility (Tezcan, 1997). The fact that the importance of financial dimension in being successful in the examination takes prominence may cause education to fail in performing its functions such as providing social mobility and reducing the gap between classes. There exist no research results in the relevant literature revealing the relationship between the time students spend at the private teaching center and test achievement. However, some research results indicate that students attending private teaching centers have a more positive attitude towards private teaching centers than those who do not (Karaer, 2007). According to this result, it can be predicted that students who have a more positive attitude towards their lessons may get better results in examinations.

The results of a study conducted by Ünal, Önal & Cemaloğlu (2008) indicate that with the new system of passage to secondary education which began to be implemented in the 2007–2008 educational year, the number of students attending private teaching centers increased considerably and even students in lower classes began to attend private teaching centers. It seems that the variables of mother’s level of education and father’s level of education, which are among the variables predicted in the study, are less effective on students’ class scores than the variable of the time the student spends at the private teaching center. The results of two studies together can be shown as evidence of how important attending a private teaching center is important in our system of passage to secondary education.

It is observed that attending private teaching center is effective on students’ class scores. According to the results of the study, it appears that the new system of passage to secondary education, one of the goals of which was to reduce dependence on private teaching centers, is unable to perform this goal of it’s properly. Therefore, it is advisable that the suggestions made below be taken into consideration.

Elimination of students’ dependence on private teaching centers, which has a negative effect on equality of opportunity in education, should be made one of the prioritized subjects of education. For this purpose, meetings should be held in areas of education where not only administrators but also all parties involved in the issue will attend, the data that will be collected in these meetings should be made into a report and a decision should be made regarding the subject in the Council of National
Education. One of the ultimate goals in this issue should be reducing the effect of attending private teaching centers in passage from primary education to secondary education. It seems that if students devoting more time to studying and learning became more successful than students attending private teaching centers, this would be more compatible with the principle of equality of opportunity in education. Investigation of other variables that affect students’ class scores is also considered important.

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