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## The Impact of Number of Students per Teacher on Student Achievement

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### Abstract

Effectiveness of teachers has a crucial place in education and it is usually evaluated based on students' achievement. The focus of teacher effectiveness has been primarily on quality of teachers and how teachers instruct. However, there are external factors that influence teachers' effectiveness like the number of students per teacher. The goal of this study was to identify if there is a significant correlation between number of students per teacher and students' achievement. In the study, the data for the number of students per teacher was obtained by dividing the total number of students in high schools by the total number of teachers in high schools in every city of Turkey. The data for students' achievement was based on each city's achievement ranking on Turkey's Transition to Higher Education Exam. Spearman Rho's analysis was conducted to see if there is a correlation between these variables. The result of the analysis showed a significant correlation of  $-.561$ . This moderate negative correlation between the student teacher ratio and achievement revealed that the cities with greater number of students per teacher tend to have a low achievement on Turkey's Transition to Higher Education Exam. The result suggested more teachers should be hired in order to decrease the number of students per teacher so that students' achievement can enhance.

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### 1. Introduction

Teachers are a basic part of educational system as having a vital and decisive role in the quality of education and how well students learn. There might be seen a general public opinion that relates the level of students' learning to how much they study and do their homework. Nevertheless, students' success in course grades and general exams, in other words their academic achievement can be affected by many factors. Effectiveness of teachers in teaching

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their classes is a very important one of these factors that considered as the most important school related factor in increasing students' performance and success (Miles, 2011). Therefore, it is worthwhile to examine the factors that impact teacher quality or teacher effectiveness and how such factors affect students' academic achievement eventually.

The effectiveness of teachers and their contribution in producing a high quality education has been studied by many researchers. In those studies, researchers have focused on teacher-student interaction as an important aspect of a good education and academic achievement (Graue, Rauscher & Sherfinski, 2009). Among such researchers, Hamre et al. (2007) and La Paro et al. (2004) viewed social and academic interaction between teachers and students as a crucial determinant of the academic success. The interaction between teachers and students is generally believed to be affected by characteristics of teachers and students. However, there are some other aspects that affect this interaction like the number of students per teacher in a school.

Number of students per teacher is generally associated with class size and it is mainly believed that smaller classes provide a better teaching and learning. This belief has been shared by many countries like the USA, European countries, China, Japan, and many other countries and they made policies to reduce their class sizes (Blatchford & Lai, 2012). The average class size has been decreased in many countries; the decrease between 2000 and 2010 in lower secondary education class size has been quite high for some countries like 33.9% for Portugal, 27 % for Spain, 20% for Japan, 17% for Korea, 13.2% for United States. Nevertheless, there is still a big difference between class sizes of the countries. Amongst the OECD countries, the average class size at the lower secondary level is 23. There are countries like Finland, Iceland, the UK with class sizes of 19 and lower and countries like Turkey, Korea and China with class sizes of 28, 34 and even 54 (OECD, 2012).

The policies to reduce the class size are generally received well by many; it is generally supported by parents, teachers, administrators and consequently policy makers (Graue, Rauscher & Sherfinski, 2009). One of the most of important reasons behind such policies is that common support, which is based on the belief that smaller classes positively impact the academic achievement of the children. That support is primarily based on the research that advocates the benefits of smaller class size. The research behind the class size is plenty since such studies started a couple of decades ago and still researchers do various studies about different sides of this topic on different academic levels.

Among these studies, the STAR project that is implemented by the Tennessee State Department and CSPAR project which is done in the United Kingdom are the significant studies that show the importance of class size on academic achievement. The STAR project demonstrated that kindergarten and primary school students in small size classes with 13-17 students had significantly higher test scores than students in regular classes with 22-25 students (Word, Jahnston, Bain, Fulton, Zaharias, Achilles, Lintz & Folger, Breda, 1985-1990). The CSPAR project is a more recent non-experimental longitudinal study that also observed primary school students for 11 years to see the effect of class size on academic achievement. The study found that class size noticeably affects the academic success of students in both mathematics and literacy (Blatchford, 2003).

Both of these huge projects clearly show the influence of small class size on academic achievement of children and there are many other studies showing the positive impacts of class size on students. Nevertheless, some researchers concluded that this academic achievement cannot solely be the result of the small class size. They suggest that number of students in a classroom has an influence on the classroom process, course activities, students' engagement and consequently students' learning. However, the real reason behind the academic achievement is that; small class size actually gives teachers the opportunity to spend more time with each student which more directly affects their learning and academic success (Croll & Hastings, 1996). In fact, such judgments reveal that other than class size, the student teacher ratio is an important aspect to look since that factor actually indicates the time a teacher can spend on each student.

Student teacher ratio is understood by many as class size; though they are similar, they are not exactly the same thing. Class size is the number of students attending a class or in general terms, the average number of students in a classroom. Student teacher ratio is number of students per teacher or in other words the average number of students

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