CONTRIBUTING FACTORS THAT INFLUENCING STUDENTS PERFORMANCE: AN ANALYSIS

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ABSTRACT

Measuring the student learning data helps schools understand how students are performing, and what improvement is needed. Most school improvement effort focuses on student achievement. There are many factors influencing the student achievement or performance outcome. Research found that nature of 'gender' contributes to student achievement. This paper presents the overview and general understanding of students' academic achievement, and analysis of student learning and teachers' perception data. This paper seeks to answer the following questions a) How is school doing; b) what school contributing factors are influencing the student achievement, and c) what teachers might say about corresponding proficiency levels for Mathematics test at this high performing school? The purpose of this study is to analyze the student learning and perception data of CST advance results in mathematics over three consecutive years at one of the California's high performing elementary school. The study attempted to find out the school causes or school contributing factors that influencing the performance outcomes and teachers perception on this issue. The study comprising an interview with teachers and literature review related with data for school improvement and student achievement. The finding of this study shows that a) the environment and the nature of 'gender' itself contribute to student achievement between a male and a female student. B) Overall student achievement was strongly impacted by parent involvement and teacher effectiveness c) the 'pressure-effect' program is one of the reasons impacting student achievement over time.The result of this analysis is suggested to become a basic knowledge to educators who are interested in school improvement and student achievement. It is also hoped that the findings could become a guideline to researchers who are interested in doing further research on the teacher effectiveness or achievement gap for k-12 education.

Keywords: data analysis, students' performance, teachers' perception, school management, school problems, equity, equality

Introduction

This study was conducted at one of the top performing elementary school located in Placentia-Yorba Linda, California. Yorba Linda is a suburban city in northeastern Orange County, California. According to the 2010 census, the city in which this school is located had a population of approximately 64,234 (Census, 2010). The census data also show that the median household income in 2010 was over $120,000; the median household income was $109,681 while in 2007

The problem this study address is the lack of research on the importance of analyzing data to improve student performance. There are many factors contributing to student performance, however it is not focusing on the use of data. For this study, student learning data and perception data were used in order to understand the student proficiency in mathematics at this school. These data were used in an attempt to find the answer of a) *How is a school doing; b) what school contributing factors are influencing the student achievement, and c) what teachers might say about corresponding proficiency levels for Mathematics test at this high performing school.* This paper analyzes the student learning and perception data of CST advance results in mathematics over three consecutive years It describes the overview and general understanding of students' academic achievement, and analysis of student learning and teachers' perception data which will focus on the advance performance data on California Achievement Test (CAT) in Mathematics for three consecutive years (2nd grade, 3th grade and 4th grade) by gender. CAT is a standard based assessment used to determining the degree to which school programs enable students to attain proficiency of the standards. Every California student in grades 3 through 8 and grade 11 is assessed in reading and math.

Review Of The Literature

Measuring the student learning data helps schools understand how students are performing, and what improvement is needed (Bernhardt, 2004). Most school improvement effort focuses on student achievement. There are many factors influencing the student achievement or performance outcome. Nickerson & Kritsonis, (2006) talk about three factors that may contribute to the student achievement; parent involvement, time spent on task or at school and study habit. Besides that, the environment and culture in which students are raised may play an important role in the achievement. Some of the culture and environment factors that contribute to the performance outcome are the social economic status and poverty (Rothstein, 2007). Students living in persistent poverty are more likely than other students to suffer from many conditions that impede their learning and achievement, including poor health care and unstable family structure. Carola and Marcelo (1995) stated that when parents have better financial resources, they can provide children with better education and children will perform much better in school. National Center for Education Statistics (NCES) identified a variety of factors which are correlated with the student achievement and gap between Black and White students. For example, most black students were more likely come from families living in poverty, which is associated with lower educational

performance. Besides that, Schrag (2007) in his article mentioned that unequal distribution of funds was the main reason minority students are failing. This shows that financial resources and household can make a different in student achievement over time.

Another factors contributing to student achievement is teacher and classroom. Wright, Horn & Sanders, (1997) found that differences in teacher effectiveness were the dominant factor affecting student achievement. They also found that effective teachers appear to be effective with students of all achievement levels, regardless of the level of heterogeneity in their classroom. Ineffective teachers produce inadequate progress academically, regardless of how similar or different the student regarding their academic achievement. Besides that, Sander & Rivers (1996) also found out that student in classroom of very good and effective teachers, following relatively ineffective teachers make excellent academic gains but not enough to offset previous evidence of less than expected gains.

Last but not least, research also found that nature of 'gender' contributes to student achievement. Even though the male and female students were sitting in the same classroom, listening to the same teacher, reading the same materials, however both receive very different educations (Sadker, 1994). Female student's performance upon entering schools are better than boys on every measure of achievement, but by the time they graduate, they have fallen behind (Sadker, 1994). "Girls in grades six and seven rate being popular and well-liked as more important than being perceived as competent or independent. Boys, on the other hand, are more likely to rank independence and competence as more important." (Bailey, 1992)

Methodology

The purpose of this study is to analyze the student learning and perception data of CST advance results in mathematics over three consecutive years. Comparison will be made based on two cohorts group, by gender; male and female. The study attempted to find out the school causes or school contributing factors that influencing the performance outcomes and teachers perception on this issue. The study comprising an interview with teachers and literature review related with data for school improvement and student achievement.

The samples of this study were two teachers from elementary school in Yorba Linda-Placentia. This study began by obtaining related literature about the contributing factors in student achievement followed by careful analysis by looking at the aggregate data to find problems in it (focusing on mathematics tests score). For the purpose of this study, the principal, gave me data on student mathematics test score for three consecutive years in a form of hard copy. In order to get teachers' perception, the interview was conducted on November 22, 2014 at 12pm in the school meeting room. Three teachers and a principal were there during the interview. However for the purpose of this study, deeper questions were asked to only two multiple subjects credential teachers. Teachers were given an open-ended questionnaire about their student CST results in mathematics, their performance outcome and the factor contributing to it. Questionnaire was based on the structure questions that already been modified and adaptation from Bernhard (2004) step in designing questionnaires follows by certain dimension which focus on student achievement.

Last but not least, to conform to the objective and purpose of this study, data analysis will focus on the student achievement data in a mathematics test score for three consecutive years and the factors contributing to it. Data will be display in term of graph and narrative.

Findings

The findings of this study is to focus on the CST advance results in mathematics by gender at one of the high performance school in California for three consecutive years, 2010/2011, 2011/2012, and 2012/2013. Figure 1 below shows the total number of student at this elementary school. This school had 120 students (male=58, female=62) in 2010/2011, 114 students (male=55, female=59) in 2011/2012, and 110 students (male=54, female=56) in 2012/2013. The total number of female students outnumbered male students for three conservative years.

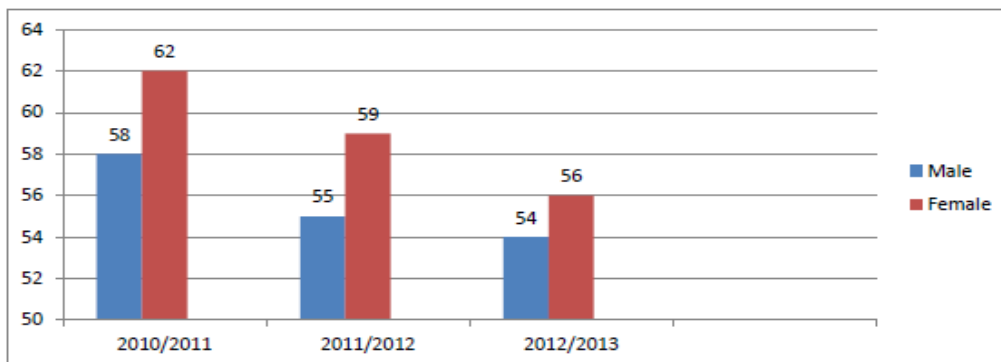**Figure 1: Total number of students over time**

Figure 1: The number of student over time by gender

Table 1 below summaries the number of students with advance, proficient and basic/below basic for a mathematics test from 2010/2011, 2011/2012 and 2012/2013.

Table 1: Number of student in CAT Mathematics test

	Advance			Proficient			Basic/Below Basic		
	2010/11	2011/12	2012/13	2010/11	2011/12	2012/13	2010/11	2011/12	2012/13
Male	41	34	39	9	15	11	8	6	4
Female	36	34	38	17	14	14	9	11	4

Table 1: The number of students with advance, proficient and basic/below basic for three consecutive years

Figure 2: The number of students with Advance scores in Mathematics by gender for three consecutive years
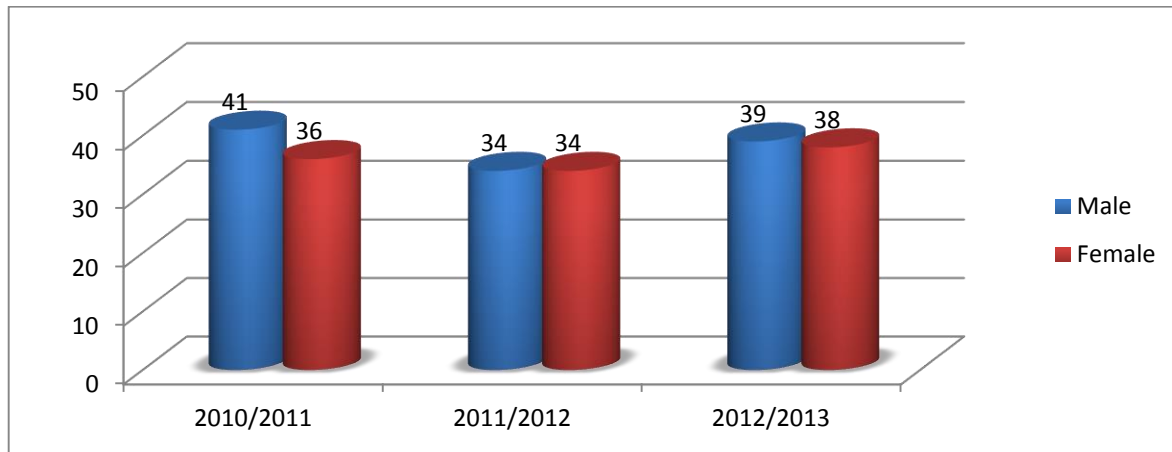

Figure 2: Total number of students with Advance test scores in Mathematics by gender over time

Figure 2 shows the comparison between male and female students in mathematics score from 2010/2011 until 2012/2013 at the one of the California High Performing School. Overall, the male students had slightly higher scores than female students on CAT mathematics test (advance level) for year 2010/2011 and 2012/2013. In year 2011/2012, the number of students with advance level was equal between female and male. When I look at this data, I was wondering what happen in 2011/2012 that made the advance score for both cohorts decrease in comparison with previous year. Teachers were asked if something changed or happened in 2011/2012 in term of school process, parent consent or demographic change and what surprised me was that nothing happened during that school year. Teachers said that simply because the total enrolment was decrease in 2011/2012 so indirectly it decreased the number of students with advance score.

Based on the interview, teachers said that slightly different in the number of students with advance level between male and female in 2010/2012 and 2011/2012 was due to many reasons. First, student absent was a strong negative predictor of gain in achievement in all subjects including mathematics. One of the teacher said that the number of female students who were absent in 2010 was higher than a male student. Both teachers agreed that some reasons of absence include distance from house to school, academic motivation, illness, disengagement and fear of personal safety. They believe that students with better attendance records (male or female) had stronger test performance.

Second, teachers talked about the 'pressure-effect' program as one of the reasons impacting student achievement over time. Pressure-effect program was designed to increase student achievement by pairing a low performance student with a high performance student. This approach will put low performance student under pressure and force them to perform better. The school has implemented this program last year and as shows in the graph, there is an increment in overall student achievement over time from 2010/2011 to 2012/2013. One of the teacher said "students who made progress are those who were surrounded by peers in the same grade who had high scores on the prior test, and most of them are boys".

Third, both teachers also believe that the environment and the nature of 'gender' itself contribute to student achievement between a male and a female student. It is not something unusual when the community, parents and teachers socialize female students

toward a feminine ideal. Both teachers said that most of their female students are known as being quite, passive, neat, calm and emotional whereas male students are praised for being active, speak up and independently. Female students are socialized in order to gain popularity and left the educational performance and ability behind.

Last but not least, one teacher stressed that another reason that strongly impact overall student achievement was parent involvement and teacher effectiveness. One of the teacher added that students do much better in school when their parents are actively involved in their education, over time. The other teacher added that teacher qualifications such as experience, level of education and subject area knowledge appear to matter for overall student achievement over time.

Discussion

This paper analyzes the student learning and perception data of CST advance results in mathematics over three consecutive years in order to identify the contributing factors influencing student academic performance. It describes the overview and general understanding of students' academic achievement, and analysis of student learning and teachers' perception data. Based on the data analysis and the interview with teachers, we can conclude that student achievement over time were influenced by many factors such gender, teacher effectiveness, teacher qualification, student's demographic factor, family background, school program, classroom environment, school environment and school culture. Besides that, different students or cohort will result in different outcome.

Two recommendations presented in this study are intended to help the principal and school to improve student achievement and strengthening school system for the purpose of academic success. First, teachers should review and discuss the lesson plan, new practiced, and participate in training to become confident with new teaching technique. This helps teacher to enhance their teaching skills and attract student to learn. Second, school should works on improving their environment, and meeting student wellness and needs especially for low-income students. Research shows that physical, cultural and school environment impact a student's ability to succeed. When a student misses school days due to physical or emotional health issue such hunger, bullying, discrimination and boredom, that student's likelihood of academic success drops dramatically. School needs to revise some of their programs such free reduced lunch in order to consistently gains in student achievement.

This study has many implications for practicing and aspiring teachers, school leaders, administrator, policy makers and researchers to improve the student academic performance. The most important implications are the importance of identifying and developing effective use of data skills for teachers and school leaders, and acquiring more training and mentoring for principal, headmasters, teachers and staff on the important use of data.

The findings of this study related to only one high-performing school in California, however it provides important information regarding the importance use of data to determine the contributing factors that influence student academic performance at school worldwide. It is hope that the result of this analysis is suggested to become a basic knowledge to educators who are interested in school improvement and student achievement. It is also hoped that the findings could become a guideline to researchers who are interested in doing further research on the teacher effectiveness or achievement gap for k-12 education.

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