

Academic Performance: Its Implication on Strategic Architecture

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Abstract

Education can become a shared experience in the context of a learning community resulting in significant public benefits. It is linked with an individual's well-being and opportunities for better living. This study examines the performance of students in achievement test in Science, English and Mathematics of selected schools in Asia. The descriptive method was utilized in the study and sample size of two hundred forty eight (n=248) was ascertained from selected schools. The research findings revealed that students' performance in achievement test when classified as a whole and when taken as to type of instruction and gender got a below average performance. There were significant differences though when classified as a whole compared to type of instruction and gender where there were no significant differences in students' performance. The data served as a baseline information in designing plan redirection and formulating management program of schools in achieving exemplary result.

Keywords: Performance, Achievement Test, English, Science, Mathematics

1. Introduction

According to Michael Perrone (2016), achievement tests are primarily used in making classroom-level decisions and are designed with particular reference to the course objectives/learning goals of a specific class. Such tests measure students' mastery of a particular instructional domain in order to make decisions regarding the advancement and/or competency of the students. The content of achievement tests can be derived from three different sources: the textbook, the course syllabus, and the class objectives. Such tests are considered to be criterion-referenced as students' scores are compared with the level of mastery achieved, rather than compared with other students; performance is measured according to an agreed-upon criterion or standard.

The researchers wanted to address how important achievement test in gauging the students' learning and as a basis in the school planning program to help the students achieve more in the test. Interested in whether the type of instructions had something to do with the performance of students in the test, the researchers found out whether the type of instructions based on their observation really influences the students' performance in the test. The researchers found out that the students' gender matter in faring on the tests of the three subjects – English, Mathematics, and Science.

Used appropriately, achievement tests can provide an accurate snapshot of how well students are performing in various subjects, according to W. James Popham (2001), a Professor Emeritus and testing expert from the University of California at Los Angeles. Parents appreciate having such information to pinpoint areas where children can do better. Teachers also benefit from the ability to objectively measure a student's comparative strengths and weaknesses.

The result will help to ensure quality in teaching and learning throughout the school. In helping

to achieve effectiveness, the school plan will direct attention towards those areas of school activity which is accepted as being essential in ensuring effectiveness.

Statement of the Problem

In this study, the researchers sought to find out the performance of students in achievement test of selected schools in Asia and its implications for school management program. The study answered the following questions:

1. What is the performance of students' achievement test in English when taken as a whole and when taken as to type of instruction and gender?
2. What is the performance of students' achievement test in Mathematics when taken as a whole and when taken as to type of instruction and gender?
3. What is the performance of students' achievement test in Science when taken as a whole and when taken as to type of instruction and gender?
4. Are there significant differences in the performance achievement test in English when classified as to type of instruction and gender?
5. Are there significant differences in the performance achievement test in Mathematics when classified as to type of instruction and gender?
6. Are there significant differences in the performance in achievement test in Science when classified as to type of instruction and gender?
7. Are there significant relationships between the performance in English, Mathematics and Science in the achievement test?

Hypothesis

1. H₀: There is no significant difference in the performance in the achievement test in English when classified as to type of instruction and gender.
2. H₀: There is no significant difference in the performance in the achievement test in Mathematics when classified as to type of instruction and gender.
3. H₀: There is no significant difference in the performance in the achievement test in Science when classified as to type of instruction and gender.
4. H₀: There is no significant relationships between the performance in English, Mathematics and Science achievement test.

In order to conceptualize the context specificity of the implication of achievement test for school planning program, a paradigm was proposed.

Paradigm of the Study

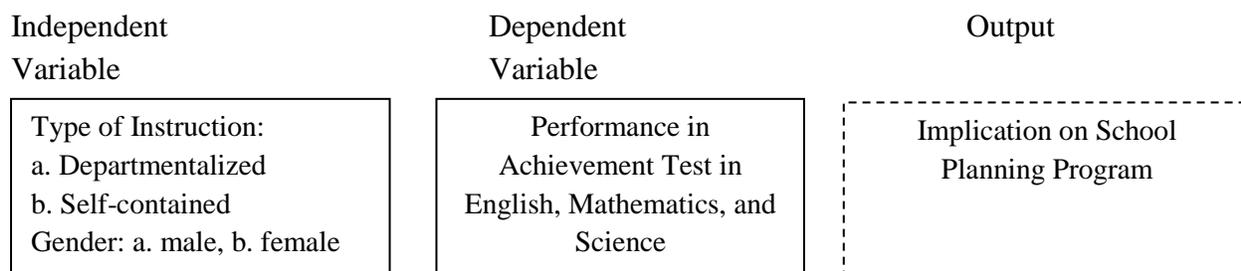


Figure 1.The independent and dependent variables as paradigm of the study.

2. Review Of Literature

Factors Affecting Students' Academic Performance

The increase in productivity leads towards new sources of earning which enhances the economic growth of a country (Saxton, 2000; Battle & Lewis, 2002). The students' performance varies anytime and educators, trainers, and researchers have long been interested in exploring variables contributing effectively for quality of performance of learners. These variables are inside and outside school that affect students' quality of academic achievement. These factors may be termed as student factors, family factors, school factors and peer factors (Crosnoe et al as cited by Farooq et al., 2011). In this context, the following variables included in the study are further discussed and supported by the reviews:

Socio-Demographic and Economic Status

Socioeconomic status is one of the most researched and debated factor among educational professionals that contribute towards the academic performance of students. The low socioeconomic status causes environmental deficiencies which results in low self esteem of students (Adams as cited by Farooq et al., 2011). Moreover, the SES can be deliberated in a number of different ways; it is most often calculated by looking at parental education, occupation, income, and facilities used by individuals separately or collectively. Parental education and family SES level have positive correlations with the student's quality of achievement. The results of the study revealed that socio-economic status (SES) and parents' education have a significant effect on students' overall academic achievement as well as achievement in the subjects of Mathematics and English.

School-Related Factors

The school has also been a contributing factor towards students' achievement it could either be the teacher, his/her peers and the school facilities. The teachers, for instance, should look into the multi-faceted relationship of students with them as teachers, and with their parents and peers, because this relationship influences their learning, daily life styles, and even their self perception. It is imperative, then, to love the teaching profession which may not be financially rewarding, but the dedication in molding the youth and services the nation, is invaluable (Victorino, 2011).

The teacher should be concerned with other things, other than the preoccupation with students' classroom experiences, teaching methods, and enrichment of subject-matter content. This is so because teaching is a personalized matter.

Family

A child who is worried and unhappy has not zest for learning (Victorino, 2011). White (2001), states that the influence of an ill-regulated family is disastrous to all society. Students ought to be given careful scrutiny to check their use of the tools they feel at ease and acquainted with which they feel are viable in accomplishing academic tasks. In connection with this, the social affordances of utilizing social networking may not be provided in a single particular social technology but instead within the mixture of several social technologies (McLoughlin and Lee, 2008). According to Khan (2009), Facebook users often time experience poor performance academically. Moreover, Karpinski & Duberstein (2009) pointed out that Facebook users devoted lesser time to their studies in comparison to nonusers did and subsequently had lower GPAs.

Departmentalization

High teacher turnover due to burnout can be reversed by decreasing teacher workload and increasing job satisfaction (Bridges & Searle, 2011; Timms, Graham, & Cottrell, 2007). Departmentalization is one option that would directly affect workload by decreasing the number of subjects taught by each teacher and indirectly affect job satisfaction by increasing efficacy; ultimately improving student achievement (Ryan & Deci, 2002; Wilkins, 2010).

To keep teachers in the field longer and increase their average years of experience, school officials should advocate practices that prevent teacher burnout.

Teacher Workload

Bridges and Searle (2011) investigated teacher perceptions of workload. Based on their study, the authors found teachers' workloads significantly increased over the last 20 years, as well as hours per week worked; only about half of the respondents at the time of the study believed their current workload was sustainable. Through their qualitative study, Bridges and Searle (2011) revealed how workload affected teachers, potentially causing burnout or health issues, dissatisfaction, and potentially, teachers leaving the profession. Departmentalized teachers plan and prepare for fewer subjects, resulting in fewer obstacles and barriers and increasing job satisfaction.

Stress Levels

Teacher workload indirectly influences student achievement by triggering stress, which ultimately affects teacher impact (Klassen, 2010; MacNeil et al., 2009; Timms et al., 2007). For example, Sass, Seal, and Martin (2011) conducted a study to determine impacts of stress levels on teacher retention rates and found student behavior had a significant impact on teachers' stress levels. In most cases, teachers are not given choices in regards to the types of students they will

teach; leading to classrooms with a hodgepodge of personalities, learning styles, and behavior-related issues (Klassen, 2010).

Curriculum Subject Proficiency

It is rare for any teacher to be proficient in more than one or two areas of the curriculum (Anderson, 1962; Brown, 2012; Chan & Jarman, 2004; Klassen & Chiu, 2010). When teachers believe they are not effectively teaching parts of the required curriculum it can cause negative effects for the teacher and students. Brown (2012) reviewed eleven studies that explored the relationship between self-efficacy or a teacher's belief in their own teaching abilities and the three dimensions of burnout in teachers, consisting of emotional exhaustion, lack of personal accomplishment, and depersonalization or feeling detached from one's work at the school. This is significant because the lower a teacher's level of self-efficacy or belief in ability is, the more emotionally exhausted a teacher feels, and less the teachers believe they are accomplishing their goals, until the teachers reach the point where they are depleted of their emotional resources and become disconnected from their teaching career, and leave the teaching field (Brown).

Communication between Teachers

There is a range of research on communication between teachers for both the departmentalized and self-contained structures. For either classroom model, communication between teachers is increased if the teachers who teach the same grade level have a common planning time (Reed, 2002). Creating a shared planning time for either classroom model may be challenging due to scheduling problems (Gerretson, Bosnick, & Schofield, 2008). There are always issues with teachers effectively working together and communicating, due to different teaching philosophies and personality conflicts (Reed).

Teacher-Student Relationships

It is especially important that students' social and emotional needs, along with their educational needs are met at school. Students need to feel safe, accepted, validated, and connected to their school to gain the most from their education, and to do that it is essential that students form relationships with their teachers (Chan, Terry, & Bessette, 2009). Research has shown that teacher-student relationships are the foremost influence on students' academic and behavioral trajectories (Chang, Muñoz, & Koshewa).

Gender and Academic Performance

Research done by Borde (2013) showed that gender did not play a role in academic performance. Another study by Meece and Jones (2006) also revealed that gender differences did not influence students' standardized science test scores. However, Haist et al., (2000) showed that men performed better than women in certain settings while women outperformed men in other settings. A study by Hedges and Newell (2000) showed male students outperformed female students in science, but in reading and writing female students did much better. However, educational statistics have indicated that female students are outperforming their male

counterparts at all levels of the education system and attaining higher qualifications. After analyzing more than a million graduating students, Woodfield and Earl-Novell (2006) observed that female students did better than male students. They attributed this partly to female students being more academically responsible and thus less likely to be absent from lessons.

3. Methodology

The descriptive method was utilized and the sample size of 248 was conveniently selected from schools in Asia. An ex post facto research design was used to explore the previous performance of students achievement test in English, Mathematics, and Science and their relationship to several dependent variables such as type of instruction and gender. Ex-post facto means after the fact. It means ex-post facto research is a method of teasing out possible antecedents of events that have happened and cannot be engineered or manipulated by the investigator.

Source of Data

The source of data was the achievement test results. The data included the scores of the students in the three subjects (English, Mathematics, and Science), their gender, and the percentage of students' scores.

4. Results And Discussions

The purpose of this quantitative research study was to find out and bring the performance of selected students' test into relationship especially as to type of instruction and gender.

Table 1. The Performance in the Achievement Test in English when classified as to certain categories

| CATEGORY | f | M | Description |
|------------------------|----------|----------|--------------------|
| A. As a whole | 248 | 81.7661 | Below Average |
| B. Gender | | | |
| Male | 115 | 81.0565 | Below Average |
| Female | 133 | 82.3797 | Below Average |
| C. Type of Instruction | | | |
| Departmentalized | 122 | 82.4959 | Below Average |
| Self-Contained | 126 | 81.0595 | Below Average |

The performance in Achievement Test in English was determined using means and their corresponding descriptions.

Table 2. The Performance in Achievement Test in Mathematics when classified as to certain categories

| CATEGORY | f | M | Description |
|------------------------|----------|----------|--------------------|
| A. As a whole | 248 | 80.6774 | Below Average |
| B. Gender | | | |
| Male | 115 | 79.8000 | Passed |
| Female | 133 | 81.4361 | Below Average |
| C. Type of Instruction | | | |
| Departmentalized | 122 | 81.0656 | Below Average |
| Self-Contained | 126 | 80.3016 | Below Average |

Table 3. The Performance in the Achievement Test in Science when classified as to certain categories

| CATEGORY | f | M | Description |
|------------------------|----------|----------|--------------------|
| A. As a whole | 248 | 83.0403 | Below Average |
| B. Gender | | | |
| Male | 115 | 81.9913 | Below Average |
| Female | 133 | 83.9474 | Below Average |
| C. Type of Instruction | | | |
| Departmentalized | 122 | 83.7213 | Below Average |
| Self-Contained | 126 | 82.3810 | Below Average |

Table 4. Difference in the Performance in the Achievement Test in English when classified as to certain categories

| CATEGORY | t | df | Sig. (2-tailed)(p) |
|------------------------|----------|-----------|---------------------------|
| A. Type of Instruction | 2.423* | 246 | 0.016 |
| B. Gender | 2.222* | 246 | 0.027 |

Table 5. Difference in the Performance in the Achievement Test in Mathematics when classified as to certain categories

| CATEGORY | t | df | Sig. (2-tailed)(p) |
|------------------------|--------|-----|--------------------|
| A. Type of Instruction | 1.271 | 246 | .205 |
| B. Gender | 2.748* | 246 | 0.006 |

* Significant at 0.05 alpha level

Table 6. Difference in the Performance of Achievement Test in Mathematics when classified as to certain categories

| CATEGORY | t | df | Sig. (2-tailed)(p) |
|------------------------|--------|-----|--------------------|
| A. Type of Instruction | 2.201* | 246 | 0.029 |
| B. Gender | 3.241* | 246 | 0.001 |

* Significant at 0.05 alpha level

Table 7. Relationship between the Performance in English, Mathematics and Science in the Achievement Test

| Variable | r | Sig. (2-tailed)(p) |
|-------------------------|---------|--------------------|
| English and Mathematics | 0.473** | 0.000 |
| English and Science | 0.607** | 0.000 |
| Mathematics and Science | 0.432** | 0.000 |

** Significant at 0.01 alpha level.

On the performance in Achievement Test in English, Mathematics, Science when classified as a whole and when taken as to type of instruction and gender, the results showed that the respondents got a below average performance. There were significant differences though when classified as a whole compared to type of instruction and gender, where there were no significant differences in students' performance.

On whether or not there are significant differences in the performance in the achievement test of schools in Mathematics when classified as to type of instruction and gender, the results showed that there was a no significant difference in the performance of students in Mathematics when they are classified as to type of instruction. This means that students under departmentalized and self-contained instruction have the same performance in the achievement test in Math. When classified as to gender, results showed that there was a significant difference in the performance

of male and female students. It has been suggested that female students fared better than the male students in the achievement test in Mathematics.

On whether or not there are significant differences in the performance in the achievement test of schools in Science when classified as to type of instruction and gender, the results showed that there was a significant difference in the performance of students in Science when they are classified as to type of instruction. This means that students under departmentalized instruction performed better than students under self-contained instruction in the achievement test in Science. When classified as to gender, female students performed better than the male students in the achievement test in Science.

On whether or not there are significant relationship between the performance in English, Mathematics and Science in the Achievement Test of Schools, the result showed that there was significant relationship between English and Mathematics, English and Science, and Mathematics and Science with correlation coefficient of 0.473, 0.607 and 0.432, correspondingly.

5. Conclusion

There is evidence that students did not perform outstandingly, but less than the average. Therefore, remedial actions should be taken in order to help them perform better in English, Mathematics, and Science achievement tests. Teaching students to believe that their ability could be increased and value learning as a goal, even when it involved hard work or initial errors is very imperative.

In a departmentalized classroom, teachers are stronger in specific content areas and only teach to their strengths.

Females have the advantage on performance in achievement tests. Gender differences in learning styles is a possibility. Psychological factors such as stereotype threat, which can impact cognitive load, or students having growth or fixed mindsets may be the reason why a gap emerges when they take more challenging exams that test critical thinking.

The results of achievement test served as motivation to further improve their performance and helped the parents involved themselves in helping their children to study better to achieve better performance.

They were beneficial to teachers especially to English, Math, and Science teachers. Through this study, they will be able to see the importance of teacher's specialization in contribution to students' performance.

Furthermore, they will also be beneficial to the school administrators in terms of making decisions as to what type of instruction will be used, making systematic plans like upgrading the teachers and improving school facilities to further enhance student's performance - as well as the researchers, since this could serve as reference and possible avenue for related studies.

6. Recommendations

The researchers recommend the following:

1. Schools should allocate funding to build and staff an English, Mathematics, Science enhancement programs to ensure that the students in Asian territory will have a strong English, Mathematics, and Science aptitude;
2. The schools should review their school's Mission statement. Their new vision should be tied to their Mission Statement, but build up on it;
3. Everyone must involve in data analysis; from the administration to the teachers. The schools should do something about the study. They should celebrate their strengths, keep the focus on improvement and draw up plans on how they are going to improve on their weaknesses and implement it;
4. The school should make sure the expectations are not set too low and demonstrate an expectation that all students can achieve the objectives of English, Mathematics, and Science;
5. Students, at an early age have to be taught how to self-regulate their learning, set their own academic goals, develop strategies to meet their goals, and reflect on their academic performance;
6. High-stakes testing can be stressful for everyone—teachers, administrators, parents, and students. And though some anxiety can be helpful, making students feel the urgency to prepare, it can turn detrimental quickly, undermining the preparation they have done;
7. Communicating with parents on a regular basis is an integral part of engaging them in their child's success in testing. Teachers reported that sending home notes with practice materials for parents to work through with their child helps to keep parents involved. Teachers also use other tools, such as email and websites, to communicate with parents. There is a growing need for research that examines potential sources of support for students. The current investigation helps to address this need by extending research related to the academic achievement . Analyzing the test results to identify any deficiencies in instruction can help determine why students perform well or below average and
8. To conduct a study that is more longitudinal in nature. Such a study will help to provide a much more comprehensive model of development that considers influence from school and peers over time.

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