

Academic Performance and Perceptions about Contributing Factors: Evidence from Engineering Students of Lahore

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Abstract

The study intended to assess differences in the performance of students at school and at university levels and the impact of the perception of students about the contributing factors of family, teachers, and self-efforts on their academic achievements. Data were initially collected through a structured questionnaire from a sample of 261 final year students of engineering departments at universities of Lahore. The results were compared through the means of their grades or scores at the school examinations and at the universities examinations. Similarly the statistics were computed to know the impact of perceptions of the sampled students about the above mentioned three contributing factors on their academic performance both at school and at university level. The study found significant differences between university and school levels regarding the performance of students. A significant change in the perception of students about the share of family, teachers, and self-efforts on their performance was assessed.

Keywords: Performance, perception, family, teachers, self-efforts, academic achievements.

Introduction

There are two main objectives of this study. The first is to estimate the difference in the performance of students at two distinct levels, school and university. The second is to assess the change in the perception of students about the role of contributing factors on their academic achievements.

Before the initiation of the survey, a focus group of students of engineering departments of different universities was formed to assess the most significant factors. In the focus groups, students identified the following factors, which had a significant effect on their academic achievements:

- a. Family support (moral and economic)
- b. Teachers (teacher's skill, qualification, guidance, etc.)
- c. Students' self-profile (self-efficacy, commitment level, self-discipline, life objectives, etc.)

Literature Review

The performance of a student depends on many factors. Nevertheless, three factors, family, teacher, and personal profile of students, are most critical (Diaz, 2003). Significance of factors may vary depending upon the context, culture, level of education. Family interaction and the Socio Economic Status (SES) of the family may play an important role in the performance of students. As stated by Schulz (2005), "The socio-economic status of families has been consistently found to be an important variable in explaining variance in student's achievement" (p. 3). Schulz explains that family may contribute in many ways, for instance, it can provide financial, moral, and other necessary and useful support to a student. They can provide a stimulating home environment to promote cognitive development. The personal attention of a family and its members is a strong variable. As identified by Hijaz and Naqvi (2006), merely access to better resources does not provide a guarantee for the better performance of students. They have established a negative correlation between the income of a family and the performance of a student. Although it may vary from situation to situation, it is difficult to refute and defy the role of family in the performance of students.

Coleman Report provides that family background accounted for the majority of the variation in student achievement (as cited by Dills, 2006). Dills considers SES

as a highly reliable predictor of the performance of a student. Rothman (2003) also holds the view that "In one scenario, school students from low-SES homes are at a disadvantage in schools because they lack an academic home environment, which influences their academic success at school. Another scenario argues that school and neighborhood environments influence academic success, so low-SES schools are generally lower-performing" (p. 1).

Rothman's finding is significant since facilities have a strong influence on performance. Access to resources is a factor which is highly demanded for better performance; particularly, it becomes more of a prime nature when students are in universities and getting higher education. It has been observed during interaction with students, that their performance partially depends upon the access to resources, like research journals, data bases, availability of required software, and more.. Rothman believes that access to resources depends upon the SES of a family. Nevertheless, it is one factor, which may partially affect the performance though there are additional factors which are also highly linked with performance.

The parents' role is another factor which has a significant impact on the performance of students. It may be due to the concern and influence of parents. Diaz (2003) makes it clearer and says, "Educational condition attributed to the family is beyond all doubt or discussion, as there is an ever-increasing awareness of the importance of the parents' role in the progress and educational development of their children (p.46). The role of family, particularly a strong interaction between parents and a school, has also been noticed by the United States government. The US government put forward an act to improve the interaction of parents with schools. Gianzero (1999) provides the detail of this act as quoted by Gianzero, "The Goals 2000: Educate America Act, federal legislation enacted in 1994, boldly predicts that by the year 2000, every school will promote partnerships that will increase parental involvement and participation in the social, emotional, and academic growth of children"(p. 2). Gianzero further states that the role of a family is not simple. "Nevertheless, the notion that families play a crucial role in their children's development and school success in both home and school environments elicits a host of questions, all of which carry significant implications for the type of family-school linkages a particular school district or individual school might choose to pursue" (p. 2). Gianzero thrashes out various functions of a family that play a crucial role in the performance of a student. Gianzero explains that a family leaves deeper effects on the academic performance of a student. An education-friendly home environment, values and priorities, living style and routines of family, support of parents to solve difficult issues, help in homework, discussions on education related topics, monitoring of after-school activities, and help while a student is enduring to work hard, are all

factors that play a decisive role in the life of a student during which he achieves high targets.

Eagle's study (as cited by Gianzero, 1999) identifies the role of parents' interaction in the better performance of students. He concluded that "twenty-seven percent of students whose parents were highly involved during high school (defined as frequency of communication with teachers, monitoring of schoolwork, and planning for post-high school activities) attained bachelor's degrees" (p. 6).

Deutscher (2004) studied the impact of parents' involvement in the performance of students and found convincing evidence that "Parent involvement has been shown to be an important variable in children's education, and more schools are trying to encourage increased involvement. It therefore becomes essential to understand what types of parent involvement have the most impact on children's academic performance." Deutscher's view fortifies the arguments that the role of a family is a factor which has influence on the performance of students. This argument is further supported by Silins and Harvey (2000).

The second crucial factor which can alter the performance is the teacher. UNESCO (2005) explains, Teachers are a key enabling factor in improving the quality of education. The evidence of this and many other reports is that teachers are critical to any reform designed to improve quality (p. 154).

UNESCO has rightly reported that the learning process completely depends upon the teacher's ability and experience. Sweatt (2000) cited findings of a study conducted by Goldenberg, which concludes that teachers' expectations from students do not matter a lot, whereas, teachers' actions matter a lot and play a dominating role in the learning process. "A reciprocal relationship between students and teachers showed that such a relationship influences students' achievement to the extent that teacher's expectations may not have as much influence on achievement as do teachers' actions" (p. 26). Sweatt further states that "teachers with high standards and strong beliefs about student's work habits and classroom behavior promoted higher student achievement and more individualized planning at the classroom level" (p. 27). It is important to note that all such studies demonstrate a correlation between a teacher's ability, commitment, hard work and the outcome in the form of student's performance.

Xu and Gulosino (2006) discuss the combined effort of teacher and parents in the learning process and concluded, "One of the behavioural aspects of teaching, teacher efforts in building and maintaining a strong teacher-parent partnership, is found to have significant impact on improving early childhood student performance

(p. 364). Xu and Gulosino have shown their concern on the quality of the teacher, not on the qualification of the teacher. Furthermore, they concluded that the ability of teachers to work closely with parents should be the key quality of teachers.

According to Gonzalez, as cited by Diaz (2003), a consensus exists among the diverse motivational theories and approaches as they conceptualize motivation in terms of conscious beliefs and values (p.45). Marchesi and Martin, as cited by Diaz (2003), elaborated on the role of the aptitude of the students. They believe that "that the pupil's socio cultural level and his previous aptitudes indirectly influence the outcomes of learning since they delimit the classroom procedures" (p. 47). Aptitude is a broad term; it covers skill, talent, ability, and more, and these factors are major contributors in the performance of a student. Ergul (2004) discussed the role of self-motivation, level of discipline, and learning style of students in the distance-learning program. Ergul concludes that the motivation of a student plays a leading role in the whole learning process. Motivation is a broad term, which explains the inspiration, persuasion, inducement, impulse, and incitement of a student. Ergul emphasizes that self- efficacy is also a major contributing factor.

The possible explanation of the previous discussion is that SES and the interaction of family, ability/skill of teacher, and the profile of a student are key factors in the whole learning process. This list is not exhaustive in nature.

Objectives of study

Following are the objectives of the study:

- a. To estimate the difference in the performance of students at two distinct levels, school and university
- b. To assess the change in the perception of students about the role of contributing factors of family, teachers, and their self- efforts on their academic achievements at school and university levels

Methodology

A focused group of students from engineering colleges and universities was formed to examine the perceptions of students about the role of different factors in their academic performance. A questionnaire was made to gather information about the performance of students and their perceptions about the role of family, teachers, and their self-contribution on their academic achievements.

Surveys were conducted in the engineering colleges and universities of Lahore, Punjab. The city was chosen purely due to reasons of convenience. Information was collected about the total figure of students seeking knowledge in these institutions. Based on the total strength of students, a quota was allotted to each university. Students were approached in the relevant university on a random basis.

The questionnaire was tested before using it for data collection. Approximately 271 students showed willingness to provide data but we could collect data of only 261 students. Statistical analysis was carried out with the help of SPSS. A common element among all the students was that they were in the final year of their graduation (electrical, mechanical, textile, computer).

There are a number of ways to estimate the performance of students, but the most frequently used method is to check their grades at different levels. There are certain shortcomings attached with this method.

As discussed by Schulz (2005), considering aggregate performance in shape of grades is one method, which is commonly used by different researchers in various empirical studies. In this study, we are relying on aggregate grades that are used commonly, as posited by Schulz.

As expressed by students during focus group discussions, there are a number of dissimilarities in the subjects, courses descriptions, depth/breadth of knowledge, and ways to measure performance. It is assumed that such differences will not affect the results significantly since we are comparing the same group of students at two distinct points.

In this study, we asked students about the impact of family, teachers, and self -efforts in their performance at school and university levels.

Assumptions

- a. The student's grades at the university level will be higher in comparison to secondary school level grades.
- b. The contributing factors of family, teachers and self- efforts will be lower at the university level as compared to the school level.

Data Measurement

The universities in which we conducted survey utilize a semester system in grading and a GPA (Grade Points Average) for each subject and a CGPA (Cumulative

Grade Points Average) at the end of the programs. Conversely, school examinations are conducted on an annual basis, and grades are given in percentage form. For purposes of this study, the CGPA was converted into percentages, for easy comparison with the school grades. For this purpose, help was given by the examination departments of the university concerned.

Another part of the data pertains to the perception of students about different contributing factors. For this purpose, the students were asked to provide the share of percentage of different factors

Overview of Data Collected

Based on stratified sampling, we contacted 271 students. Data was collected from 261 students from engineering departments of six different universities of Lahore. The participants were students in their final year of their respective discipline.

Data Analysis

SPSS (Statistical Product and Service Solution) software was used to test the hypotheses and get the frequencies. In the following lines, outcome of data analysis is given.

Scores of Students

Table 1, shows that mean value of score at university level is less (73.70 %) than the school level (78.30%). It shows a decline in performance of students. In addition to that, there is another clear difference in standard deviation. Standard Deviation at university level (10.80) is quite high than at school level (6.67). It indicates that variance at school level is comparatively low. Apparently, there is a reasonable difference in the performance of students at two levels. Paired sample t test proved that there is a significant variation in the means of scores at university and school level ($p = 0.000$ and $t = 5.28$).

Table 1
Mean of grades of students at school and university level

	Score of Students in School Examination (%)	Score of Students in University Examination (%)
Valid	224	246
Missing	37	15
Mean	78.30	73.70
Std. Deviation	6.60	10.80

Contribution of Teachers, Family, and Self- Effort in the Performance of Students

Table 2

Contribution of teacher, self- efforts, family in the performance of students at school and university level

Contributing Factors	N		Mean School Level	Mean University level
	Valid	Missing		
Students' Perception Towards Contribution of Teachers on their Performance at School Level	256	5	28.98	20.36
Students' Perception Towards Contribution of Teachers on their Performance at University level	261	0	24.24	19.21
Students' Perception Towards Contribution of their Self -Efforts on their Performance at School Level	256	5	24	21.59
Students' Perception Towards Contribution of their self-Efforts on their Performance at university Level	260	1	32.74	21.69
Students' Perception Towards Contribution of Family Efforts on their Performance at School Level	255	6	32.69	21.86
Students' Perception Towards Contribution of Family Efforts on their Performance at University Level	261	0	22.01	20.86

Table 2 depicts that students perceive that family contributes more at school level and decreases at university level, whereas, contribution of teachers at university level is low as compared to when they were in school. Conversely, role of self-efforts is higher at university level. It shows that students at university rely more on their efforts.

Data explored that there is a statistically significant difference in the perception of students about the contribution of family in their performance ($t= 6.098$, $p= 0.000$). It provides enough evidence that students perceive that contribution of family at university level is not equal to contribution at school level. Table 2 shows that at school level it was 32.69.00%, whereas at university level it has gone down to 22.01%. Based on the results we can reject the hypothesis that contribution of self-efforts at university and school level is same.

There is a statistically significant difference in the perception of students about the contribution of their teachers in their performance ($t= -3.1093$, $p= 0.002$). This result provides sufficient evidence that students perceive that contribution of

teachers at university level is not equal to contribution at school level. Table 2 shows that at school level it was 28.98%, whereas at university level it has come down to 24.24%. Based on these results we can reject the hypothesis that contribution of teachers at university and school level is same.

It was found that there is a statistically significant difference in the perception of students about the contribution of their self- efforts in their performance ($t = -4.751$, $p = 0.000$). These results provide sufficient evidence that students perceive that contribution of their efforts at university level is not equal to contribution at school level. Table 2 shows that at school level it was 24.00%, whereas at university level it has gone up to 32.74%. Based on the results we can reject the hypothesis that contribution of self-efforts at university and school level is same.

Discussion

The objectives of this study have been addressed into two main areas; measure of change in the performance of student at university and at school level and the change in the perceptions of students about different contributing factors on their academic performance. Literature also provides a number of reports which have successfully demonstrated a link between the academic performance of students and the role of various factors. The most common factors are family, teacher, school environment, and personal profile of the students (Diaz, 2003; Gianzero, 1999; Hijaz & Naqvi, 2006). As put forward by Hijaz and Naqvi(2006) there are many ways to consider different factors which can affect performance of students. It seems that there is no universally accepted method to measure the performance of students. In this context, Table 1, shows the average grades of students at school level are 78.30 %, whereas at university level it is 73.70 %. It looks that there is a negative growth and this growth may be due to many reasons. It may be due to some difficulties in learning process, complex studies etc. At the same time, there is a drastic change in the perception of students (Table 2). Table 2 indicates that students feel the contribution of teachers at school is 28.98 % and it has gone down to 24.24%. It is the same case with contribution of family. Students view that family contribution is more at school level (32.69 %), whereas, it decreases to 22.01% only at university level. Moreover, students view that their self- contribution increases from 24% (at school level) to 32.74 % (at university level).

All above discussion provides evidence that students' performance at university level becomes low as compared to the performance in schools exams. In addition, family and teachers' contribution has also given a decreasing trend. Based on

the analysis, it can be concluded that low contribution of teachers and family might have affected the performance of students in the negative direction.

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