

## Research Article

## Evaluation of Performance of the Students in Engineering Colleges Overtime –A Case Study

A.Pavanan Kumari<sup>a\*</sup>, N.S Murthy<sup>a</sup> and T Venugopal<sup>b</sup><sup>a</sup>HBS Department, Godavari Institute of Engineering and Technology, R.J.Y, A.P.<sup>b</sup>SCSVMV university, Kanchipuram.

Accepted 25 July 2013, Available online 01 August 2013, Vol.3, No.3 (August 2013)

### Abstract

The future success of Indian industry depends on the growth of quality engineering education. Yet, there is significant unemployment among graduating engineers, due to their poor quality. India produces a large number of engineers every year. So why do industry leaders complain about the absence of quality engineers for their industries?. In India, the brightest students opt for engineering after the 12th standard. This has resulted in a spurt of engineering colleges, mainly in the private sector. This is because of the inconsistency of the performance of the students basing on various factors of which some of them are quantitative and qualitative nature. We made an attempt to know the associations of performance over different time periods in the three engineering disciplines viz. Mechanical, Computer science and Information technology in a four year Engineering course. This evaluation makes us to think over it and identify the various factors causing the downfall and to take the necessary action to improve the performance based value education.

**Key words:** Quality Engineer Performance Value education Consistency

### Introduction

The academic performance of students in different disciplines of engineering program varies with time. Generally in the beginning of their academic program in a professional colleges the students are regular, vigilant of their class work and other academic programs, but this consistency in the performance may change over time resulting in increase or decrease in the performance. The reasons for the change may be many, but the student has to get over them and make consistent effort to improve in academics rather than gloating over his good performance which may lead to downfall. In order to know the associations of performance over different time periods in the engineering program the following study was undertaken.

The academic performance of student is dependent on many factors of which some of them are quantitative (hours of study, working hours etc.) and qualitative (regularity, systematic approach, positive mind set etc.) nature. The qualitative variables can be converted to quantitative type by introducing a scale and the converted quantitative scores and the utilized to study the effect on the performance of the students. The qualification of the qualitative variables is an approximation procedure; as such the exact influence cannot be ascertained.

An attempt is made to study the association of performance between successive semesters for 3 disciplines viz: Mechanical, Computer science and Information technology in a four year Engineering course. The correlation matrix of academic performance between 1<sup>st</sup>, 2<sup>nd</sup>,.....7<sup>th</sup> semesters are discussed below for Mechanical Engineering students.

It is of interest to note that correlation between the 1<sup>st</sup> and 2<sup>nd</sup> semester performance ( $r_{12}$ ) is 0.8915 which is highly significant. It shows that higher academic performance in 1<sup>st</sup> semester is associated with higher performance in the second semester. The higher level performance in 1<sup>st</sup> semester generates confidence to maintain the same or high level in the succeeding semester. The simple correlation between performance of 1<sup>st</sup> semester with 3, 4,5,6,7 semesters ranged from 0.45 to 0.87. Even though these correlations are high the association will have the effect of other variables (semesters) and hence it is difficult to draw valid conclusions.

The association between the performance of second and third semesters ( $r_{23}$ ) is 0.67 which is significant but less than  $r_{12}$ . It shows that correlation between the performances in successive semesters in the earlier periods is higher than the later periods. Further the association  $r_{34}$  is 0.6 which is less than  $r_{12}$  and  $r_{23}$  indicating that high performance in 3<sup>rd</sup> semester on an average may not be associated with same level in 4<sup>th</sup> semester. The other correlation  $r_{35}$ ,  $r_{36}$  and  $r_{37}$  are 0.24, 0.49 and 0.47

\*Corresponding author: A.Pavanan Kumari

respectively which are small in nature. It is interesting to note correlation  $r_{45}=0.87$  which is of same order of  $r_{12}$ . The association between  $r_{56}$  and  $r_{67}$  semesters were 0.61 and 0.62 respectively which are moderate nature. In general  $r_{12}$  is highest indicating strong positive association between the performances of first and second semesters and it slowly decreases over time showing decline in motivation levels over time.

The correlation matrix for Information Technology students is given below. The correlation  $r_{12}=0.81$  indicating a significantly high positive association. The other correlations in that row ranges from 0.0964 to 0.6323. The association  $r_{23}=0.71$  which is reasonably high and positive but less than  $r_{12}$ . The correlations  $r_{24}$  to  $r_{27}$  ranges from 0.1892 to 0.657. It is of interest to note that  $r_{34}=0.84$  is of same order as that of  $r_{12}$ . The other correlations in 3<sup>rd</sup> semester range 0.87 to 0.70. The correlations  $r_{45}$ ,  $r_{56}$ , and  $r_{67}$  are 0.78, 0.79, and 0.72 respectively which is significantly high and are of same order. The association between succeeding semesters ranged from 0.84 to 0.71 indicating that the reduction over time is marginal.

The correlation co-efficient for computer science students are given below. The correlation co-efficient  $r_{12}=0.0725$  which is very small indicating that the performances in both the semesters has no association what so ever. Similarly  $r_{13}=0.0735$  is also very small and the other correlations  $r_{14}$  to  $r_{17}$  ranged from 0.77 to 0.63. The correlation  $r_{23}=0.65$  which is moderately high indicating that there is no strong association between successive semesters. The correlation  $r_{24}$  to  $r_{27}$  ranged from 0.83 to 0.62. The highest correlation was obtained in  $r_{34}=0.899$ . The correlations  $r_{45}$ ,  $r_{56}$  and  $r_{67}$  are 0.79, 0.78 and 0.71 respectively indicating strong positive association. In the computer science group it was observed that there is no association in the performance of 1<sup>st</sup> and 2<sup>nd</sup> semester and association between the succeeding semesters ranged from  $r_{23}=0.65$  to  $r_{67}=0.71$  respectively.

*Correlation Matrix for Mechanical Engineering*

	Isem.	IIsem.	IIIsem.	IVsem.	Vsem.	VIsem.	VIIsem.
Isem.	1	0.89	0.67	0.87	0.69	0.44	0.54
IIsem.	0	1	0.66	0.56	0.71	0.67	0.69
IIIsem.	0	0	1	0.60	0.24	0.49	0.47
IVsem.	0	0	0	1	0.86	0.60	0.69
Vsem.	0	0	0	0	1	0.61	0.58
VIsem.	0	0	0	0	0	1	0.62
VIIsem.	0	0	0	0	0	0	1

*Correlation matrix for Information Technology*

In most of the cases the association between the performances of first and second semesters is high and this relation slowly decreases over time.

To improve the academic performance, the student, the teacher and the management altogether have to identify and rectify the various factors both qualitative and quantitative which are affecting the quality education. Research should be done to identify the factors which are causing th poor performance.

**Conclusions**

This work stated that in most of the cases the association of the performances between first and second semesters is high and it decreases slowly over time which indicates the care should be taken for later semesters in all aspects for improving the performance. The reasons may be either qualitative or quantitative to improve the value based spiritual education which leads to quality performance and quality Engineers for Indian Industry.

	Isem.	IIsem.	IIIsem.	IVsem.	Vsem.	VIsem.	VIIsem.
Isem.	1	0.81	0.63	0.48	0.51	0.53	0.60
IIsem.	0	1	0.71	0.18	0.42	0.64	0.65
IIIsem.	0	0	1	0.84	0.79	0.87	0.70
IVsem.	0	0	0	1	0.78	0.67	0.71
Vsem.	0	0	0	0	1	0.78	0.42
VIsem.	0	0	0	0	0	1	0.72
VIIsem.	0	0	0	0	0	0	1

*Correlation Matrix for Computer Science*

	Isem.	IIsem.	IIIsem.	IVsem.	Vsem.	VIsem.	VIIsem.
Isem.	1	0.07	0.07	0.68	0.63	0.77	0.74
IIsem.	0	1	0.65	0.80	0.83	0.61	0.62
IIIsem.	0	0	1	0.89	0.79	0.87	0.70
IVsem.	0	0	0	1	0.79	0.67	0.71
Vsem.	0	0	0	0	1	0.78	0.62
VIsem.	0	0	0	0	0	1	0.71
VIIsem.	0	0	0	0	0	0	1

**References**

Rangan Banerjee and Vinayak P. Mouly., Engineering Education in India Understanding the Expansion and Quality of Engineering Education in India.  
 S. Karlin ( Nov 2006), Certification Uncertainty, IEEE Spectrum, vol. 43, no. 11 (NA), pp. 58–61, Nov.  
 Sajal K Palit, The Development of Technical and Engineering Education in India. *Global J of Engg. Educ.* Vol.2, No.3  
 T. venugopal and A.Pavana Kumari, Evaluation of Value Education in Engg. Colleges using AHP process. NCAMES-2011,A.U.