

The Role of Emotional Intelligence in the Academic Achievement of Engineering Students: A Case Study

P. Lakshmi Narayanamma¹, V. Rama Devi^{2*}

ABSTRACT

Emotional intelligence (EQ) is considered to play a vital role in one's personal life, school and college life and work life. The present study aims to determine the relationship between EQ and academic achievement of engineering students. The subjects for the study are 177 engineering students drawn from an engineering institution using simple random sampling method. Primary data are collected with the help of a questionnaire. The Emotional intelligence scale developed and standardised by Schutte *et al.* was used in this study. Cronbach's α for the instrument is 0.752 and the collected data is analysed using statistical tools like mean, standard deviation, correlation, analysis of variance and regression. The findings of the study revealed that there is no significant relationship between emotional intelligence and academic performance of engineering students and gender that significantly influences academic performance.

KEYWORDS: Emotional intelligence, Academic achievement, Engineering students, Gender, Technical education.

INTRODUCTION

A major part of student's life is spent in an educational institution. Emotional intelligence (EQ) skills can be better nurtured and developed during this phase of life. Emotionally healthy children are generally happier, cooperative and learn more effectively. Educational institutions have the potential to help learners develop into well-formed individuals who can express themselves, form lasting relationships, contribute usefully in the world and accomplish their learning potential. Emotional literacy inspires learners by enabling them to uphold their inquisitiveness and creativity in quest of solutions to problems. It also strengthens their ability to respond to the challenges they will face in their lives. Social and emotional education not only improves academic performance but also gives students life skills that are just as important.

Learning itself is an intrinsically emotional business. Emotions are the backbone to good learning. For example, one must be emotionally involved in order

to pay attention in the learning process. In addition to this, there are certain dimensions of EQ like the ability to control one's emotions – that are fairly important for test taking and attend the class.

The role of educators in educational institutions is not confined to imparting knowledge and skills, but also encouraging students to express and manage their emotions well as part of their character and personality development. In the day-to-day interaction with the students, teachers will be in a better position to notice students' various feelings as well they can encourage them to express their emotions in accordance to different situations and not suppress themselves. Iest such suppression leads to symptoms of withdrawal or aggressive, depressive behaviour later on. An anxious or worried student should be given attention before he/she becomes psychologically depressed. Once aware of students' negative state of emotions, teachers should encourage students to communicate their problems with others so that they can be helped or referred to other sources of support.

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CONCEPT OF EQ

Emotional intelligence is "the competence to identify and express emotions, understand emotions, assimilate emotions into thought, and regulate both positive and negative emotions in the self and others" (Matthews *et al.*).

According to Goleman (1995), EQ consists of five components: knowing our emotions (self-awareness), managing them, motivating ourselves, recognising emotions in others (empathy) and handling relationships.

LITERATURE REVIEW

Lawrence (1998) noted that the concept of EQ has stimulated a lot of interest among education theorists and practitioners. With a rise in school violence, drop-outs and low levels of performance and academic achievements, the educators started looking other areas of student achievement that are non-traditional (Low, 2000). These non-traditional measures comprise developing EQ as a part of academic learning.

EQ and related non-traditional measures of intelligence and human performance predict success better than traditional intelligence quotient (IQ) tests and other standardised measures of academic achievement (Nelson and Low, 2003). Goleman has asserted that EQ can be as powerful, and sometimes more powerful, than IQ (Goleman, 1995, p.34). Ediger (1997) proclaimed that the emotions, feelings and values are essential for a person's well-being and achievement in life. Success depends on several intelligences including EQ. IQ is not the only measure of success; there are other measures like EQ, social intelligence and luck that play a vital role in a person's success (Goleman, 1995).

It is a common conviction that when emotions are interlinked with role, performance or both, they tend to interfere with task achievement (Ashforth and Humphrey, 1995). Kahn (1990) put forward that personal engagement or emotional involvement in tasks, reflects the highest level of motivation and leads to high performance. Kalhotra (2012) reported that there is positive correlation between EQ and academic achievement of school children. Mathur *et al.*

(2003) conducted a research study on a sample of 83 adolescents (boys and girls) from a local public school and studied the relationship between EQ and academic achievement. The study revealed that EQ substantiated and complimented academic achievement.

Ghosh (2003) reported that children with high Emotional intelligence (EI) are more confident, positive and happy, have high self-esteem and few behavioural problems, handle their emotions better and are better learners. Parker (2004) used the transition from high school to university as the context and examined the relationship between EQ and academic achievement. It was observed that academic success was strongly associated with several dimensions of EQ.

Petrides *et al.* (2004) explored the role of trait EQ in academic performance and in deviant behaviour at school. The study was conducted on a sample of 650 pupils in British secondary education. The study reported that trait EI moderated the relationship between cognitive ability and performance.

However, in the study of Bastia *et al.* (2006) on 246 first year tertiary students examining the relation between EQ and academic achievement, it was found that correlation between EQ and academic achievement was small and not statistically significant.

The review of literature reveals that majority of the research studies were conducted on school students. In addition to this, significant attempts are not made to study the relationship between EQ and academic performance of the students pursuing technical education, i.e., engineering. As a backdrop to this, the present research study is undertaken.

RESEARCH QUESTIONS

1. Does academic performance differs significantly across different EQ levels of the students?
2. Is there a significant relationship between EQ skills and academic achievement among engineering students?
3. Is there a significant relationship between EQ skills and academic achievement among engineering students based on gender?

HYPOTHESES

1. Academic performance does not significantly differ across different levels of EQ
2. There is no significant relationship between EQ skills and academic achievement among engineering students
3. There is no significant relationship between EQ skills and academic achievement among engineering students based on gender.

RESEARCH METHODOLOGY

Survey method was used and the study is conducted in an engineering institution. The population for the study comprises 1500 B.Tech students. The simple random sample technique was adopted for this sampling study and the sample size is 177. Primary data are collected with the help of a questionnaire. The questionnaire consists of two sections. The first section deals with demographic and academic performance details of the students and the second section deals with EQ items. The EQ scale developed and standardised by Schutte *et al.* was used in this study. It is based on a five-point scale that includes strongly agree (SA), agree (A), neutral (N), disagree (DA) and strongly disagree (SD). The respondents have to express his/her EQ on the five-point scale. The scale comprises 33 items of which 31 are positive and 2 are negative statements. Cronbach's α for the instrument is 0.752, which ensures the reliability of the instrument. The collected data are analysed using statistical tools like mean, standard deviation, analysis of variance (ANOVA), correlation and regression. Table 1 presents the demographic details of the respondents.

RESULTS AND DISCUSSION

Hypothesis 1: Academic performance does not significantly differ across different levels of EQ.

The hypothesis is tested by using the following procedure:

Mean and standard deviation of EQ scores of the students have been computed. The calculated values of mean and standard deviation are 126.8 and 10.318, respectively. On the basis of the calculated mean (M) and standard deviation (SD), the total sample was

further classified into high (above $M+1$ SD), moderate (between $M-1$ SD and $M+1$ SD) and low (below $M-1$ SD) EQ levels.

High EQ score: Mean \pm SD=137.118

Moderate EQ score: 116.482 \pm 137.118

Low EQ score: Mean \pm SD=116.482

Table 2 reveals EQ levels of the respondents. 19.8% of the respondents have low EQ score, 15.8% of the respondents have high EQ score and majority (64.4%) of the respondents have moderate EQ score.

After classifying the students into three levels of EQ, the hypothesis is tested using ANOVA.

Table 3 depicts that F value is insignificant and hence failed to reject null hypothesis. So it can be inferred that academic performance does not significantly differ across different levels of EQ of the students.

Hypothesis 2: There is no significant relationship between EQ skills and academic achievement among engineering students.

The hypothesis is tested using correlation. It is observed from Table 4 that correlation is insignificant and hence null hypothesis is retained. Therefore, it is implied that there is no significant relationship between EQ skills and academic achievement among engineering students. The results are in agreement with the findings of the research study by Bastia *et al.* (2006) that the relationship between EQ and academic performance of the students is small and not statistically significant.

Hypothesis 3: Gender, EQ and gender-EQ will not significantly influence academic performance of the students.

Hypothesis i: Gender will not influence academic performance

Hypothesis ii: EQ will not influence academic performance

Hypothesis iii: Gender and EQ interaction will not influence academic performance.

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Moderate EQ score: 116.482 - 137.118

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Table 1: Demographic details of the students

S. No.	Variable	Sub-category	Sample size	Percent (%)
1	Gender	Male	115	65
		Female	62	35
2	Age (years)	18	20	11.3
		19	51	28.8
		20	67	37.9
		21	32	18.1
		22	6	3.4
		23	1	6
3	Type of schooling	Private	142	80.2
		Government	35	19.8
4	Father's educational background	Illiterate	14	7.9
		X Std.	43	24.3
		Intermediate	35	19.8
		Graduation	62	35
		Post-graduation	18	10.2
		Diploma	3	1.7
		PhD	2	1.1
5	Father's occupation	Business	67	37.9
		Farmer	47	26.6
		Private job	29	16.4
		Government job	34	19.1
6	Mother's education	Illiterate	37	20.9
		I-X std.	69	39
		Intermediate	25	14.1
		Graduation	38	21.5
		Post-graduation	8	4.5
7	Mother's occupation	Working	18	10.2
		House wife	159	89.8
8	Family size	<4	23	13
		4	109	61.6
		5	29	16.4
		>5	16	9
9	Monthly income of the family	<20,000	25	14.1
		20,000-30,000	54	30.5
		30,000-40,000	51	28.8
		40,000-50,000	29	16.4
		50,000-60,000	5	2.8
		>60,000	13	7.4
10	Background	Rural	95	53.7
		Urban	82	46.3
Total			177	100

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Table 2: Emotional intelligence levels of students

Level of emotional intelligence	Frequency	Percent (%)	Valid percent (%)	Cumulative percent (%)
Low (less than 116.482)	35	19.8	19.8	19.8
Moderate (116.482;137.118)	114	64.4	64.4	84.2
High (above 137.118)	28	15.8	15.8	100.0
Total	177	100.0	100.0	-

Table 3: ANOVA

	Sum of squares	Df	Mean square	F	Sig.
Between groups	158.010	2	79.005	1.463	0.234
Within groups	9,290.315	172	54.013		
Total	9,448.325	174			

Table 4: Correlation

	Percentage of marks	Emotional intelligence score
% Of marks Pearson correlation		0.072
Sig. (2-tailed)	1	0.345
N		177
Emotional intelligence Pearson correlation	0.072	1
Sig. (2-tailed)	0.345	177
N	177	

Table 5: Tests of between subject effects

Source	Type III sum of squares	Df	Mean square	F	Sig.
Corrected model	2,542.154 ^a	69	36.843	0.906	0.668
Intercept	687,354.743	1	687,354.743	16,896.801	0.000
Gender	150.543	1	150.543	3.701	0.057
EI	1,592.762	40	39.819	0.979	0.516
Gender * EI	870.761	28	31.099	0.764	0.791
Error	4,352.714	107	40.680		
Total	1,061,094.075	177			
Corrected total	6,894.869	176			

Dependent Variable: Academic performance, 'R'² 0.369

Table 5 shows that for gender, F value is significant at 0.10 level and hence the null hypothesis is rejected. It implies that gender significantly influences academic performance. But for EQ and gender-EQ interaction, F value is insignificant and failed to reject null hypothesis. Hence, it is understood that EQ and gender-EQ

interaction does not significantly influence academic performance of the students.

CONCLUSION

EQ is considered to be a pre-requisite to lead a happy and successful life. The present research study explored

whether EQ is a predictor for academic achievement and gender has an influence on it. The results of the study indicated that there is no relationship between EQ and academic performance of engineering students and gender that significantly influences academic performance. The relationship between the two

variables – EQ and academic performance – may also depend on whether it is professional education or non-professional education and technical or managerial education. The future research studies can further investigate in this direction that may provide useful insights.

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