

Intelligence quotient and emotional quotient as predictors of academic achievement among science students

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Goleman (1995) includes characteristics namely- knowing one's emotions, managing emotions, motivating oneself, recognizing emotions in others, and handling relationships under emotional intelligence. Qualities like impulse control, persistence, empathy, good mood, hope, and optimism also characterize emotionally intelligent individuals. As a whole, he thinks that emotional intelligence is "a master aptitude, a capacity that profoundly affects all other abilities, either facilitating or interfering with them". So, it is extremely powerful in how well people perform in life. Goleman's (1995) model includes several personality and motivational characteristics in addition to intelligence. He argued that referring to these multiple variables as one entity "emotional intelligence" is both impractical and misleading. (Aalsma, C. (2004). Bar on (1997) included many social and personality characteristics in his model of emotional intelligence (e.g., intrapersonal skills, adaptability, stress-management, general mood). He also agrees that emotional intelligence has predictive ability, i.e. it can help optimize academic potential and life success. In this second model of emotional intelligence, they suggest that nonability qualities be studied independently from emotional intelligence. According to Mayer & Salovey (1997) emotional intelligence involves the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. He included abilities have been arranged into four "branches, with the lower branches consisting of psychological processes that are more basic in nature (e.g., the perception, appraisal, and expression of emotion), and higher branches involving more complex abilities such as the understanding and reflective regulation of emotions.

Goleman argued that general intelligence (IQ) typically predicts only about 20% ($r = .45$) of the variance that determines various domains of life success, leaving about 80% to other factors. Wechsler (2003) used the BarOn EQ-i-Youth Version (2000) was along with the WISC-IV and the Wechsler Individual Achievement Test--Second Edition (WIAT-II). Sample consisted of 141 students from a variety of backgrounds, all between the ages of 11 and 17. When controlling for the WISC-IV Full Scale IQ, analysis revealed that the BarOn Total EQ did not

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add significantly to knowledge of WIAT-II total academic achievement but subscales like 'Intrapersonal, Stress Management, General Mood, Positive Impression' did appear to predict achievement beyond the WISC-IV- FSIQ. So, there exists the need to conduct a to find out how IQ and EQ can predict achievement in different subjects.

OBJECTIVES OF THE STUDY:

The objectives of the present study are as follows:

- To find out relationship between intelligence quotient and achievement in various subjects.
- To find out relationship between emotional quotient and achievement in various subjects.
- To find out the extent to which intelligence and emotional quotients contribute to prediction of academic achievement in various subjects.

METHODOLOGY:

SAMPLE: Sample consisted of 40 boys and 40 girls studying in B.Sc part I in Ewing Christian College, Allahabad.

TOOLS USED:

Test of Emotional Intelligence (Student Form) was used to measure emotional intelligence. Marks obtained by students in the intermediate examination of U.P. Madhyamic Shiksha Parishad were considered as the measures of academic achievement in various subjects. Test of General Mental ability constructed by K.S. Misra was used to measure students' intelligence. The raw scores on the tests were converted into intelligence quotient and emotional quotient.

STATISTICAL TECHNIQUES USED:

Product moment coefficients of correlation, multiple correlation and stepwise regression analysis were used to analyze the data.

RESULTS AND DISCUSSION:

Observation of table 1 shows that achievement in Biology is positively related to IQ among boys ($r=0.398$) but it is positively related to EQ among girls ($r=0.631$). The values of the squares of multiple correlations for IQ for boys are .158 and EQ for girls is .398. They reveal that IQ contributes to 15.80 percent of variance in achievement in Biology among boys but EQ contributes to 39.80 percent of variance in achievement in Biology among girls. Beta values for IQ for boys is .235 while for girls it is .699.

Table 1- Summary of results of regression analysis showing the predictors of achievement of science students in Biology

S.No.	Particulars	For boys	For girls
1	Predictor Variable :	IQ	EQ
2	Correlation	.398	.631
3	Multiple correlation square	.158	.398
4	F	7.138	25.153
5	Constant	28.603	- 11.757
6	Beta	.235	.699
7	df	1, 38	1, 38

Table 2- Summary of results of regression analysis showing the predictors of achievement of science students in Physics.

S.No.	Particulars	For boys		For girls
1	Predictor Variable :	EQ	IQ	EQ
2	Correlation	.784	.774	.617
3	Multiple correlation square	.615	.354	.381
4	F	60.800	34.967	23.377
5	Constant	3.296		14.199
6	Beta	.254	.208	.444
7	df	1,38	1, 37	1, 38

A look at table 2 shows that both IQ and EQ emerged as the best predictors of achievement in Physics among boys. The values of correlations for IQ and EQ for boys are .774 and .784 respectively. The values of the square of multiple correlations for EQ is .615 but when IQ was entered into the equation it rose to .654. It indicates that IQ contributes only 3.90 percent of the variance in boys' achievement in Physics. The values of Beta for IQ and EQ are .208 and .254. The values of correlations for EQ for girls is .617. The values of the square of multiple correlation for EQ is .381. It indicates that EQ contributes only 38.0 percent of the variance in boys' achievement in Physics. The values of Beta for EQ is .444.

Table 3 - Summary of results of regression analysis showing the predictors of achievement of science students in Chemistry

S.No.	Particulars	For girls		For boys
		EQ	IQ & EQ	EQ
1	Predictor Variable :			
2	Correlation	.732	.709	
3	Multiple correlation square	.536	.629	.550
4	F	43.909	31.392	46.368
5	Constant	-23.958		5.357
6	Beta	.408	.335	.388
7	df	1, 38	1, 37	

Perusal of table 3 shows that only IQ emerged as the best predictor of achievement among boys and in the case of girls both EQ and IQ emerged as the best predictors of achievement in Chemistry. The values of IQ and achievement in Chemistry is .774 for boys but for girls it is .709. The values of the square of multiple correlation and Beta for IQ for boys are .550 and .388. It indicates that IQ contributes only 55.0 percent of the variance in boys' achievement in Chemistry. The values of correlations for IQ and EQ for girls are .709 and .732 respectively. The values of the square of multiple correlations for EQ is .536 but when IQ was entered into the equation it rose to .629. It indicates that IQ contributes only 9.30 percent of the variance in girls' achievement in Chemistry. The values of Beta for IQ and EQ are .335 and .408.

Table 4 - Summary of results of regression analysis showing the predictors of achievement of science students in English.

S.No.	Particulars	For girls	For boys
1	Predictor Variable :	IQ	IQ
2	Correlation	.731	.496
3	Multiple correlation square	.535	.246
4	F	43.660	23.674
5	Constant	-2.764	2.257
6	Beta	.533	.273
7	df	1, 38	1, 38

Observation of table 4 shows that emotional quotient failed to predict students' achievement in English. Achievement in English is positively related to IQ among boys ($r=.496$) as well as girls ($r=.731$). The values of the squares of multiple correlations for IQ for boys and girls are .246 and .535 respectively. They reveal that IQ contributes to 24.60 percent of variance in achievement in English among boys but it contributes to 53.50 percent of variance in achievement in English among girls. Beta values for IQ for boys is .273 while for girls it is .533. So, as compared to boys intelligence quotient is a better predictor of achievement in English.

Perusal of table 5 shows that only EQ emerged as the best predictor of achievement among boys and in the case of girls both EQ and IQ emerged as the best predictors of achievement in Hindi. The values of correlation between EQ and achievement in Hindi is .318 for boys but for girls it is .633. The values of the square of multiple correlation and Beta for EQ for boys are .101 and .244. It indicates that EQ contributes only 10.10 percent of the variance in boys' achievement in Hindi. The values of correlations for IQ and achievement in Hindi among girls is .647. The values of the square of multiple correlations for EQ is .419 but when IQ was entered into the equation it rose to .496. It indicates that IQ contributes only 7.70 percent of the variance in girls' achievement in Hindi. The values of Beta for EQ and IQ are .224 and .211 respectively.

Table 5 - Summary of results of regression analysis showing the predictors of achievement of science students in Hindi

S.No.	Particulars	For Girls		For boys
		EQ	IQ	EQ
1	Predictor Variable :			
2	Correlation	.633	.647	.318
3	Multiple correlation square	.419	.496	.101
4	F	27.412	18.228	4.270
5	Constant	13.262		24.712
6	Beta	.211	.224	.224
7	df	1, 38	1, 37	1, 38

To sum up it can be said that both IQ and EQ emerged as the best predictors of boys' achievement in Physics and girls' achievement in Chemistry and Hindi; IQ emerged as the predictor of boys' achievement in Biology, Chemistry and English while EQ was found to predict boys' achievement in Physics and Hindi; IQ could predict girls' achievement in English while emotional quotient emerged as the predictor of girls' achievement in Biology, Physics, Chemistry and Hindi. These findings indicate that the views expressed by researchers in the field are

questionable. As the sample for the present study is small, the researcher is of the opinion that more studies be undertaken to verify the findings.

References:

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