Emotional Intelligence and Academic performances of High School Students: A Case Study

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Abstract: - Success in higher education is an effective way of securing career development for the youth. Examination related pressures have also added to the challenges and aspirations of adolescence of the high school students. The objective of the study was to examine the impact of high school students' emotional intelligence (EI) for their study process and academic performances. Eighty five high school (Advanced Level) students (40 girls, and 45 boys) were randomly selected from two high schools in Sri Lanka. They belonged to three different subject streams in preparing for their university entrance examination. The emotional intelligence of the respondents was measured through Genos EI Inventory. Respondents' study process was assessed through the 'revised two-factor Study Process Questionnaire' of Biggs et.al. SPSS computer software was employed for descriptive and inferential analysis of data. The academic performance of the students was assessed based on their performances at end of the year examination in 2011. Study Approaches, Study Motives, and Study Strategies employed by respondents in their study process were assessed. Respondents' scores for the EI and study process variables were distinguished based on the gender. Relationships were tested among the levels of EI, study process variables, and academic performances of the respondents. High school girls revealed deeper study approaches and their academic performances were superior to the boys. There was no significant impact of EI level to the study process behavior of the respondents. There was no significant relationship between the EI level of respondents and their academic performances either. It could be premature to further comment on the relationship between the EI level and study process dimensions of respondents, and their choice of 'Study Process' without details of assessment techniques used for evaluation. Study did not reveal a significant relationship between the study process and academic performances of students. Further research is recommended on varying socio-cultural contexts, and demographic segments.

Key-Words: - Emotional Intelligence, High School Students, Academic Performances, Study Process

1 Introduction

1.1 Education and Learning Styles

Bowles and Gintis [1] expressed that education replicates work in order to produce future employees. Poropot [2] argued that many efforts intended to promote the employability of students' tends to be misguided. He elaborated that: 'if education is to fulfill its role in preparing students for work then employability should be integrated into normal educational practice, rather than added to it'. A study was conducted by Whitmire [3] in 36 universities and colleges in the United States on the performance measures of academic library performance, and the usage of library by undergraduates. A higher usage of academic library was shown by the students, who indicated active engagement in study activities and faculty interactions. However, the study has failed to reveal a strong relationship between the students' usage of library and academic performances. Poropot [2] argued that the differences between the assessment of academic performances and workplace performances could diffuse the focus on employability through education. It would be pertinent to discuss about 'Teaching' and the role of teachers' in this respect. Schmulian and Coetzee [4] viewed the teaching style as follows; 'Lecturers may consider the appropriateness of their style of pedagogy given the outcomes of the study and whether they are adding value in the classroom. Students, and other parties with a vested interest in a student's academic performance, namely parents; grantors of financial support; the university and the accounting profession, may also be interested in indicators demonstrating the possible value being added by a student's class attendance'. Marburger [5] expressed the value of guidance provided by a

lecturer in facilitating the critical thought process, indicating the improved line of students' thinking, generation of class notes etc.

1.2 Emotional Intelligence

Salovey and Mayer[6] defined emotional intelligence (EI) as an individual's ability to understand emotions of one's own and others' in a manner that allows him or her to monitor them, discriminate among different emotions, and use this information effectively in shaping one's behaviour. They [6] further defined that EI involve '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'. Intellectual Intelligence (IQ) is now regarded largely as a 'threshold requirement' for success. Research has observed a relationship between EI and academic success, above and beyond measures of cognitive ability and personality. However, EI's ability to predict academic success is generally weaker in comparison to cognitive ability and personality. EI has been found to contribute to 'soft skills', which are found to be vital irrespective of whether students seek employment in the public or private sectors or chose to start their own business [7]. Research [8] found that Conscientiousness can successfully be used to predict GPA in college seniors. Conscientiousness had accounted for 37% of the variance in GPA. It [9] was found that sensation seeking and impulsivity (low Conscientiousness) were negatively correlated with academic performance. Sanchez et al. [10] observed that intelligence alone was not enough for individuals to experience academic success. Emotional stability and Conscientiousness, has significantly contributed to an individual's academic success.
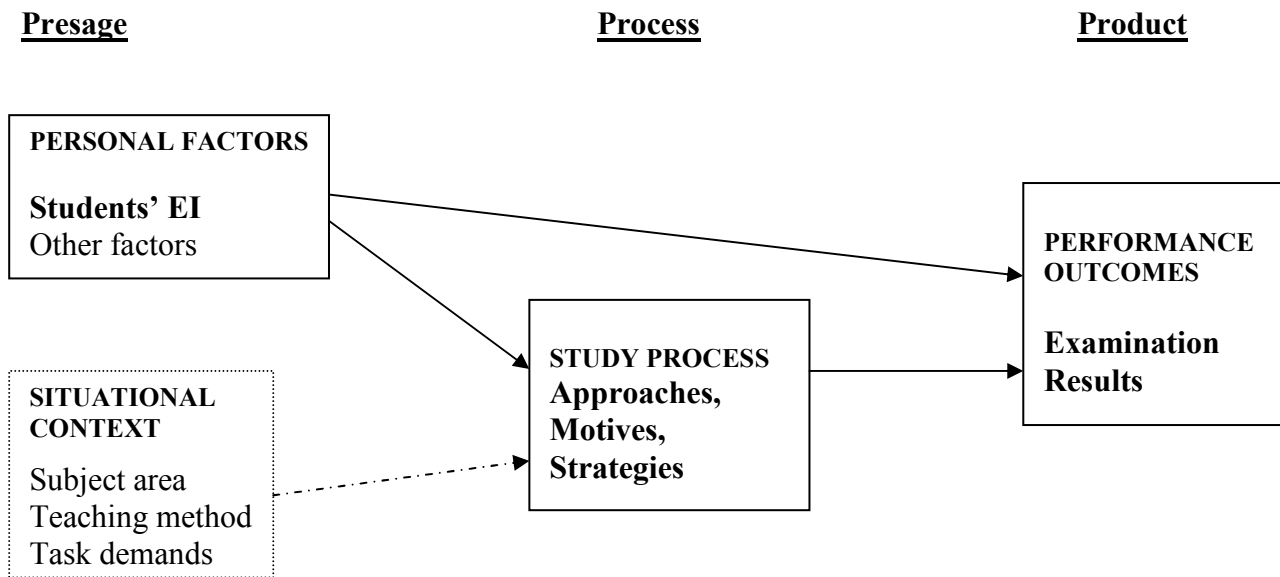
1.3 Study Process

There are many theories about studying and learning. It has been common understanding that studying is a process, involving steps. The 'students approaches to learning' (SAL) theory [11, 12] is a meta-theory conceptualizing both teaching and learning. The '3P' model of teaching and learning [13] consists of three levels, viz. a Presage, Process, and a Product. Presage level describes the individual differences within a given teaching context, focused on 'Student factors' and the 'Teaching Context'.

Process signifies the handling of specific tasks, based on 'learning focused activities'. Product level describes the differences of teaching contexts from each other. 'The heart of the teaching/ learning system is at the process level, where the learning related activity produces or does not produce the desired outcomes' [13]. In a study environment the roles of both the teacher and the student are vital for effectiveness. Researchers suggest that the involvement (and the output) of the student is more important than the teachers role, and the significance of the study approaches is focused. Biggs [14] elaborates on Deep, and the Surface Study approaches: 'A generic way of describing 'what the student does' is precisely in terms of their ongoing approaches to learning'. He [14] was so focussed in expressing that; 'A student who typically picks out likely items for assessment and rote learns them, finds that strategy won't work under portfolio assessment, so goes deep'.

1.4 High School Education in Sri Lanka

Sri Lankan education system derives from the British educational system in the 19th century. Schools consist of Primary Schools, Lower Secondary and Higher Secondary Schools. In 1938 the education in government schools was made free of charge due to the Universal Franchise granted in 1931. Primary education lasts five years, and after primary education there is Junior Secondary education which lasts for six years. Thereafter pupils have to sit the government examination namely G.C.E. ordinary level to qualify for Senior Secondary education, called as the G.C.E. Advanced level (A/L) examination. It lasts for two years. General Certificate of Education (GCE/ AL) qualification is conducted by the Department of Examinations of the Ministry of Education (which is similar to the British A/L). The A/L is a very competitive examination in selection to state universities. It diversifies over 4 major fields of study, namely: 1.) Physical Science Stream, 2.) Biological Science Stream, 3.) Commerce and Accounting Stream, and 4.) Arts Stream. In each stream, students should face 3 subjects. Additionally, there is a General English test and a Common General test [15]. High school education is indispensable in securing admission to a state university, and to pursue the future careers in Sri Lanka.

Fig. 1 Conceptual Framework of the study

Presage   **Process**   **Product**

Source: A modified version of study processes using the Biggs's general model (British Journal of Educational Psychology, The British Psychological Society, 1985) [13]

2. Methodology

2.1 Scope of the study

Aforementioned facts posit the research question; is there a relationship between the EI level and study process of students? Overall objective of the study was to examine the relationship of EI of Sri Lankan high school students' with their study process and academic performances. The specific objectives of the study were to assess and analyze the impact of emotional intelligence to study approaches, motives, and strategies, and to the effectiveness of academic performances of high school students. Conceptual framework of the study is shown by Figure 1. Study consisted of an independent variable (e.g. EI of respondents), three intervening variables (e.g. Study Approach, Study Motive, and Study Strategy) and the dependant variable, being the Academic Performance of the respondents (e.g. examination results).The three intervening variables were sub-divided into two levels; viz: Surface study approach, and Deep study approach, and the dependent variable. Respondents' academic performance was measured based on their performances at the 2011 December examinations.

2.2 Operationalization of the Study

The Study was conducted among 85 high school students (45 boys, and 40 girls) randomly selected from two high schools in Sri Lanka (SL).

Respondents were preparing to face the A/L examination in August, 2012. The Genos EI Inventory was employed to assess the EI level of the respondents. Revised-SPQ-2F instrument was employed to assess the Study Process of respondents. These constructs were selected based on their merit and simplicity. The statements were translated into Sinhala language, and modifications were conducted after pre-testing to improve clarity, and appropriateness of the instrument. Students were briefed of the purpose of research and the confidentiality of their responses was assured. Questionnaires were administered in groups for self responses on the basis of anonymity. SPSS computer software was used for the descriptive and inferential analysis of data. ANOVA, Regression, and Correlation analysis were conducted to test the relationship among variables.

2.3 Research Instruments

Genos EI Inventory focuses upon the EI ability dimensions, and measures them from a typical performance perspective. The Genos EI [16] self-report inventory (comprehensive version) consists of 70 items designed to measure the frequency with which an individual displays emotionally intelligent behaviors across seven dimensions. Genos EI Inventory items are scored on a five-point Likert scale. The Study Process Questionnaire [12] has focused on three dimensions of learning: viz;

Surface, Deep, and Achieving. Each 'study approach' has a specific 'motive', and an underlying 'strategy'. The revised two-factor SPQ (Revised-SPQ-2F) is an established measure [13] focused on 'surface', and 'deep' approaches. The two main factors (e.g. deep and surface) have distinguished the approach, motive, and strategy sub components.

3. Findings

Majority of the respondents was 18 years old. They were facing the A/L examination in August, 2012, from three major subject streams, namely, Science, Commerce, and Arts in similar proportions.

3.1 Study process of respondents

Respondents scored for their study process (intervening) variables, namely Study Approach (SA), Study Motive (SM), and Study Strategy (SS) using the Revised-SPQ-2F instrument.

Table 1 Study Approaches of respondents

Parameter	Surface Approach		Deep Approach	
	Boys	Girls	Boys	Girls
Mean (M)	31.64	28.68	33.02	31.00
Std. Dev.	5.68	7.36	5.68	6.13
Skewness	-1.18	0.41	-0.57	-0.44
Kurtosis	0.15	-0.11	0.52	0.16

Source: Authors (Sri Lankan high school students)

As shown in Table 1, respondents have recorded an overall Mean (M) value of 30.18 with a Standard Deviation (SD) of 6.70 for their Surface SA. The respective M, and SD values for their Deep SA were 32.02, and 5.49. In considering the Deep SA over Surface SA, high school girls (2.32) were relatively more inclined (over boys 1.38).

Table 2 Study Motives of respondents

Parameter	Surface Motive		Deep Motive	
	Boys	Girls	Boys	Girls
Mean (M)	13.44	12.73	15.71	15.52
Std. Dev.	3.19	4.03	2.46	4.17
Skewness	-0.95	0.35	-0.09	0.14
Kurtosis	0.38	-0.53	-0.40	-0.58

Source: Authors (Sri Lankan high school students)

Study motives of the respondents were sub divided as surface study motive (SSM), and deep study motive (DSM). Respondents indicated an overall SSM of 13.09 (M), and 3.63 (SD). Their DSM values were 15.62 (M), 3.39 (SD). The respective values for boys and girls are depicted in Table 2. Girls have shown a slightly higher (DSM-SSM) value (2.79) over boys (2.27). This was in agreement with the findings depicted in Table 1.

Table 3 Study Strategies of respondents

Parameter	Surface Strategy		Deep Strategy	
	Boys	Girls	Boys	Girls
Mean (M)	18.20	15.95	17.31	15.48
Std. Dev.	3.33	4.40	3.04	3.60
Skewness	-0.99	0.20	-1.41	0.27
Kurtosis	1.07	-0.22	1.898	-0.46

Source: Authors (Sri Lankan high school students)

Study Strategies employed by the respondents during study process were measured. Strategies were sub divided as surface study strategy (SSS), and deep study strategy (DSS). Respondents indicated an overall SSS of 17.09 (M) and 4.04 (SD). Their DSS values were 16.40 (M), 3.44 (SD). The respective values for boys and girls are depicted in Table 3. Respondents (both of girls and boys) have recorded negative values for DSS over SSS. This suggested a higher (dependence) in surface study strategies, despite possessing more liking towards deeper study motives, and study approaches. Girls have shown a slightly higher (DSS-SSS) value (-0.47) over boys (-0.89) conforming to the trend depicted in Tables 1, and 2.

3.2 Emotional Intelligence of respondents

Emotional Intelligence of the respondents was measured using the Genos EI inventory. The respondents were allocated a score based on their responses to identified events, and contexts. EI score was identified in seven sub constructs and in Total as well. Respondents' Total EI score was identified based on their gender. It was used for the analytical process with other study variables. Respondents' examination results are shown along with EI score in Table 4. Boys have recorded a higher EI score than girls. EI score suggests that boys demonstrate a slightly higher level of EI over the girls.

Table 4 Emotional Intelligence scores and examination marks of respondents

Parameter	EI Score		Marks obtained	
Category	Boys	Girls	Boys	Girls
Mean (M)	284.18	269.95	58.80	64.34
Std. Dev.	15.22	27.92	9.39	11.12
Skewness	- 2.05	-1.03	- 0.12	0.39
Kurtosis	6.20	1.58	- 0.65	-0.15

Source: Authors (Sri Lankan high school students)

It was note-worthy that the EI score of its last sub construct, i.e. Emotional Self Control has recorded the least value. EI scores had multiple modes, indicating the respondents' dispersion into several clusters. The Cronbach's Alpha figure of 88.2% indicated a higher level of internal reliability of the responses.

3.3 Academic Performances of Respondents
Academic performances of the respondents were assessed based on the marks obtained by the respondents at the end of year examination in December, 2011. Students have faced three subjects from their major stream; viz: Science, Commerce, Arts and English Language as an optional subject. Respondents' marks for the three main subjects were averaged and shown as a percentage in Table 4. Girls have scored higher values 64.34 (M), 11.12 (SD) than boys 58.80 (M), 9.39 (SD) for the major subjects at the examination.

3.4 Significant Relationships
The relationship among the study process variables/ dimensions; viz: a.) Study Approach, b.) Study Motive, and c.) Study Strategy, with their Emotional Intelligence were analyzed through logistic regression analysis. Each of these variables was analyzed in the two levels of Surface and Deep. The accompanying equation was:

$$f\,(EI) = 1/1+e^{-(a_0+a_1 x)} \quad (1).$$ EI denotes Emotional Intelligence. Fig 2 Indicates the graph analyzing the relationship between the Study Approach (Y axis) and EI (X axis) of the respondents. Deep and Surface levels of study approach have been identified by the codes of 1, and 0 respectively. The results did not reveal any notable influence of respondents' EI on their Study Approach. It could be expressed by the equation:

$$f\,(EI) = 1/1+e^{-0.744+0.00139\,EI} \quad (2)$$

Analysis between the EI level of respondents and the levels (deep and surface) of study motive, and study strategy of respondents had similar results.

Fig. 2 Study Approach and EI regression plot
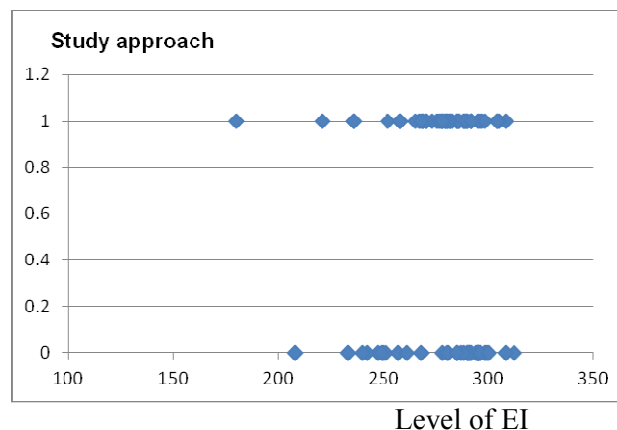
Source: Authors (Sri Lankan high school students)

The accompanying equations were as follows.
Emotional Intelligence and Study Motives:

$$f\,(EI) = 1/1+e^{0.431+0.00432\,EI} \quad (3)$$

Emotional Intelligence and Study Strategies:

$$f\,(EI) = 1/1+e^{-2.199+0.00767\,EI} \quad (4)$$

Correlation analysis, Linear Regression and ANOVA analysis were conducted between the EI level of respondents, and their examination results. No significant relationships were found between EI and examination results of respondents. Similar analysis (Correlation, Regression, and ANOVA) were conducted between the study process variables and examination results. Significant relationships were not to be found either. Significant correlations were recorded among the study process variables. Following correlations, which were significant at the 0.01 level (2-tailed), were noteworthy. The respective Pearson Correlation Coefficient value (r) is indicated within parenthesis. Deep study approach of boys with their Deep study strategy (0.796), Deep study approach of boys with Deep study motive (0.660), Surface study approach of boys with Surface study strategy (0.877), Surface study approach of boys with their Surface study motive (0.865), Surface study motive of boys with Surface study strategy (0.517), Deep study approach of girls with their Deep study motive (0.907), Deep study approach of girls with Deep study strategy (0.873), Deep study motive with girls' Deep study strategy (0.586), Surface study approach of girls with Surface study motive (0.868), Surface study approach of girls with Surface study strategy (0.889), and Surface study strategy of girls with

surface study motive (0.544). The absence of a significant correlation between the boys' Deep study motive and Deep study strategy was note-worthy.

4 Conclusion

Findings did not reveal any significant relationship between the Emotional Intelligence and academic (examination) performances of Sri Lankan high school students. There was no significant relationship noticeable between the EI level of respondents and their study process either. It would be premature to comment on the relationship between the EI level and study process dimensions of respondents, and their choice of 'Study Process' without details of assessment techniques employed for evaluation. Study did not reveal a significant relationship between the study process and academic performances of students. Sri Lankan high School girls indicated deeper Study Approaches, Motives, and Strategies over boys. And they recorded superior examination performances than boys. There were strong correlations between the study process variables (Approaches, Motives, and Strategies) of respondents. However, the scope of this paper did not warrant further analysis of study process variables. Further research on varying socio-cultural contexts, focused on demographic segments will add vitality to education systems.

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