

Original Paper

The Incremental Effect of Students' Engagement, over and above Emotional Intelligence, on Students' Academic Achievement

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Abstract

Studies examining variations in students' Academic Achievement (AA) have considered several factors including demographic factors such as age and gender; socio-cultural factors such as family background; university- related factors; student-related factors such as learning styles and socio-economic factors such as family income and expenditure. Two more factors that have gained prominence in the literature are the students' Emotional Intelligence (EI) and engagement (SE). Multiple studies have reported on the separate effect that the two constructs have on students' academic achievement. Nevertheless, to the researchers' knowledge, few have reported on the incremental effect that engagement might have, over and above emotional intelligence, on students' academic achievement. Thus, the aim of the current study is to fill the gap by exploring the extent to which students' engagement can contribute to their achievement while controlling for emotional intelligence. The research is quantitative based on a survey questionnaire distributed to a sample of 100 business students with only 93 valid entries. Collected primary data were processed using the Statistical Product and Service Solutions SPSS version 24 and analyses were performed using descriptive as well as inferential methods. Research outcomes provide additional insights on the incremental effect of students' engagement, academic achievement, over and above emotional intelligence and call for higher education institutions and policy makers to provide and/or adjust their academic and non-academic activities to reinforce a constructive and productive students' experiences.

Keywords

Emotional intelligence, students' achievement, engagement, Lebanon

1. Introduction

1.1 Students' Academic Achievement

Nabizadeh et al. (2019) contended that one of the performance measures of any educational system is the students' academic achievement, whereby Wibrowski, Matthews and Kitsantas (2017) defined academic achievement as the learners' ability to succeed in the acquisition of the planned outcome. Many scholars have emphasized the impact of mental and cognitive abilities on academic achievement; however, according to Fong (2017), having high intelligence did not guarantee academic achievement,

and individuals need to be aware of their learning styles. Students' learning styles included methods of learning applied in achieving, analyzing, and internalizing their newly acquired knowledge (Liew, Sidhu, & Barua, 2015).

Furthermore, Nabizadeh et al. (2019) concluded in their research that motivational strategies indirectly played an effective role in the student's academic achievement. In addition, Muwonge et al. (2019), in their study on the self-regulation and motivational learning strategies, stated that motivational strategies influenced students' academic achievement only through affecting critical thinking strategies and organizing skills. Worth noting that critical thinking according to Ricketts and Rudd (2004), described three dimensions including: "cognitive maturity: students' predisposition to looking for opportunities to use reasoning; anticipating situations that require reasoning; and confidence in reasoning ability; engagement: predisposition to be intellectually curious and desire to know the truth; and innovativeness: predisposition to being aware of the complexity of the problems; being open to other points of view; and being aware of their own and others biases and predispositions" (p. 24). Therefore, educational interventions to improve the academic performance of students should focus on increasing the motivation of learners and enhance their use of cognitive learning strategies. Thus, Mukhtar, Muis and Elizov (2018) indicated that students who have a high motivation to obtain a better score demonstrate more effort, better organize their information, have better time management, and show better performance. The aforementioned observations on cognitive learning and critical thinking are supported by AkbariLakeh, Naderi, and Arbabisarjou (2018) who found that there is a positive relationship between critical thinking skills and academic success of senior nursing students. In addition, AkbariLakeh et al. recommended creating a pleasant campus atmosphere to strengthen critical thinking skills which plays a crucial role in academic success of students. On the other hand, Hasanpour, Bagheri and Ghaedi (2018), in their findings, indicated that among the components of emotional intelligence, there was only a significant relationship between critical thinking skills and empathy.

1.2 Emotional Intelligence and Students' Achievement

Emotional Intelligence (EI) as a construct became more widely used in the academic literature, propelled by Salovey and Mayer (1990) presentation of what became to be known as emotional-intelligence ability. They stated that emotional intelligence consists of a group of mental abilities linked to the intelligence domain and can be measured through maximum performance tests. They defined it as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (ibid, p. 189). Later, "Emotional Intelligence" was described in terms of "abilities such as being able to motivate oneself and persist in the face of frustration; to control impulse and delay gratification; to regulate one's mood and keep distress from swamping the ability to think; to empathize and to hope" (Goleman, 1995, p. 36). Goleman's conceptualization was described as a mixed model (Mayer, Salovey, & Caruso, 2000) of EI since it constituted a mix of ability and trait components. Ashkanasy and Daus (2005) confirmed the noted "mixed" models in that they comprise a mixture of personality and behavioral items. Furthermore, O'Boyle et al. (2011) asserted that the term "mixed EI" is now frequently used in the literature to refer to EI measures that measure a combination of traits, social skills and competencies and overlaps with other personality measures.

Goleman proposed four domains of intelligence as depicted in Exhibit 1.

Exhibit 1: Goleman's conceptualization of EI

- 1) **Self-Awareness** defined as the ability to recognize one's emotions,
- 2) **Emotional self-management** [Self-Regulation] defined as the ability to manage one's emotions, incentives and resources for achieving one's goals,
- 3) **Social awareness** defined as the ability to recognize and understand people's emotions and feelings, and
- 4) **Relationship management** [Internal Motivation & Empathy] defined as one's ability to inspire and motivate others to achieve expected results.

Source: Mayer et al., 2000.

Moreover, emotional intelligence was conceptualized as a personality trait, measured through self-report, by Petrides and Furnham (2001) and was defined as “a constellation of behavioral dispositions and self-perceptions concerning one's ability to recognize, process, and utilize emotion-laden information”. The concept was termed trait emotional intelligence.

Previous research reported a positive correlation between emotional intelligence and academic achievement (Mushtaq et al., 2019; Olufemi et al., 2018; Olatunji et al., 2016; Van Zyl et al., 2015; Santos & Celis, 2020; Arora & Singh, 2017; Ayuba & Mohammed, 2014). Most of these studies used the cumulative grade average (GPA) of undergraduate students as a measure of academic achievement (e.g., Frimpong et al., 2016; Olatunji et al., 2016; Agyeman et al., 2016; Mushtaq et al., 2019). Overall, these studies asserted that students who have high emotional intelligence perform better and score better in academic achievement as they possess the capacity to deal with higher education stress, can reach out for others more easily and can adapt to challenging situations.

However, O'Connor et al. (2019) suggested that in situations characterized by ongoing stressors such as educational contexts and employment, trait measures ought to be used. The notion of Emotional Intelligence and its impact on students' achievements has not received a general consensus by researchers. Studies showed that emotional intelligence is not associated with students' achievement scores (Kashani, Azimi, & Vaziri, 2012; Ahammed, Abdullah, & Hassane, 2011; Hansenne & Legrand, 2012) or that selective components of emotional intelligence were significant in predicting academic achievement (Durgut, Gerekan, & Pehlivan, 2013; Yahaya et al., 2012). Therefore, the role of emotional intelligence in students' academic achievement still constitutes a domain of debate.

1.3 Student Engagement and Academic Achievement

Student engagement refers to the active involvement and participation of students in academic and non-academic activities displaying both a behavioral and an affective aspect (Finn & Zimmer, 2012). Other researchers like Fredericks et al. (2004) and Jimerson, Campos and Greif (2003) added a third cognitive aspect to engagement expressed as self-regulation and investment in learning. Behavioral engagement is defined as students' participation, effort, attention, persistence, positive conduct, and the absence of disruptive behavior; affective (emotional) engagement is expressed as the demonstration of positive and negative reactions to teachers, classmates, academics, or school; in addition to revealing a feeling of belonging and identification with the school (Skinner et al., 1990; Finn, 1989; Finn & Rock, 1997). Cognitive engagement is expressed as the skill of self-regulation and self-direction (Fredericks et al., 2004; Jimerson, Campos, & Greif, 2003). Overall, studies on student engagement agree that it can

predict academic achievement (Perera & Digiacomio, 2013; Chang et al., 2016; Lei et al., 2018; Usán Supervía & Salavera Bordás, 2019).

1.4 Research Objectives

This study uses Goleman's emotional intelligence domains and Finn's concept of engagement to examine the variation in academic achievement as measured by students' Cumulative Grade Point Average (CGPA). The main objective of the study is to explore the incremental validity of engagement on academic achievement over and above emotional intelligence. In light of the preceding literature, the following hypotheses are proposed:

H1: EI scores predict Academic Achievement (AA) score

H2: Student Engagement (SE) shows an incremental validity and will predict Academic Achievement (AA) over and above Emotional Intelligence (EI).

2. Research Methodology

This research is exploratory and quantitative in nature using a positivist philosophy. Deductive analysis was performed based on a survey questionnaire distributed to a sample of business students. Collected primary data were processed using the Statistical Product and Service Solutions SPSS version 24, an IBM software since 2009 (Hejase & Hejase, 2013); and analyses were performed using descriptive as well as inferential methods.

2.1 Sampling and Research Sample

A convenient approach, non-deterministic in nature, is used based on the willingness of the respondents to participate. In the process, respondents had the free will to quit at any time and they were subject to no stress that may lead to any emotional or psychological problems. 150 students, with different business administration majors, were approached from different Lebanese universities [Lebanese University, Al Maaref University and the Lebanese International University]. Though 100 questionnaires were collected back. Moreover, seven questionnaires that were semi-filled or almost empty were removed. Therefore, the valid sample size consisted of 93 business students with a response rate of 62%. The sample comprised 60 sophomore or second-year students and 33 seniors, 49 (52.69%) females and 44 (47.31%) males. The students were enrolled in one of four majors as depicted in Table 1.

Table 1. Distribution of Respondents by Major, Gender and Age

Business Major	Total No of Students	Gender		Mean Age, Years	Std. Dev. Age, Years
		Male	Female		
Accounting	32	16 (50%)	16 (50%)	21.63	1.93
Human Resources Management	30	7 (23.3%)	23 (76.7%)	21.67	3.7
Management	14	10 (71.4%)	4 (28.6%)	22.14	3.54
Management of Information Technology	17	11 (64.7%)	6 (35.3%)	21.06	1.56

2.2 Questionnaire Design

A two-part questionnaire was designed based on the literature review of emotional intelligence and student engagement. The part for emotional intelligence consisted of four sections in accordance with Goleman's domains with the following sub-sections: emotional awareness (EA; 4 items), social emotional awareness (SEA; 3 items), emotional self-management (ESM; 4 items) and relationship management (RM; 4 items); the reliability statistics for this part was Cronbach's alpha 0.635 (Table 2). An alpha value of 0.8 or above is regarded as highly acceptable for assuming homogeneity of items, while an alpha value that is greater than 0.7 is considered appropriate even though this value could be as low as 0.6 for exploratory research (Hejase & Hejase, 2013, p. 427).

Table 2. Reliability of the Emotional Intelligence Part

Cronbach's Alpha	N of Items
.635	15

The part testing students' engagement was comprised of two sections in accordance with Finn (1989): behavioral and emotional with a Cronbach's alpha of 0.769 (Table 3).

Table 3. Reliability of the Students' Engagement Part

Cronbach's Alpha	N of Items
.769	11

The aforementioned reliability results are good and appropriate since these lead to indicate a good and adequate strength of association of the questions/statements and proves that the selection of the questions is suitable for the questionnaire purpose (Chehimi et al., 2019).

2.3 Procedure

Upon data collection, a total score was computed for every sub-scale of the emotional intelligence part and a total score for students' engagement (TOTENG). A two-step hierarchical regression analysis was run with CGPA as the criterion. In step one, emotional intelligence components were entered as predictors. In step two, the total score for student engagement was added to check for the incremental effect on CGPA.

Before running the regression, the assumptions for hierarchical regression were checked.

Firstly, a sample size of 93 was deemed adequate given five independent variables to be included in the analysis (Tabachnick & Fidell, 2001). The collinearity statistics were all within accepted limits (Tolerance > 0.1, VIF < 10); thus, the assumption of multicollinearity was deemed to have been met (Coakes & Steed, 2003). Residual and scatter plots indicating the assumptions of normality, linearity and homoscedasticity were all satisfied (Pallant, 2001).

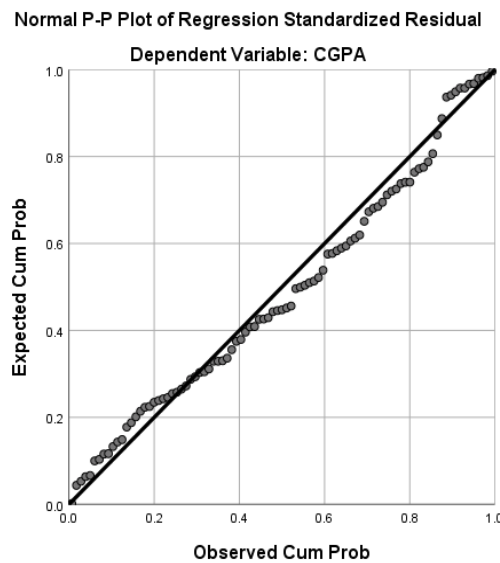


Figure 1. Normal P-P Plot

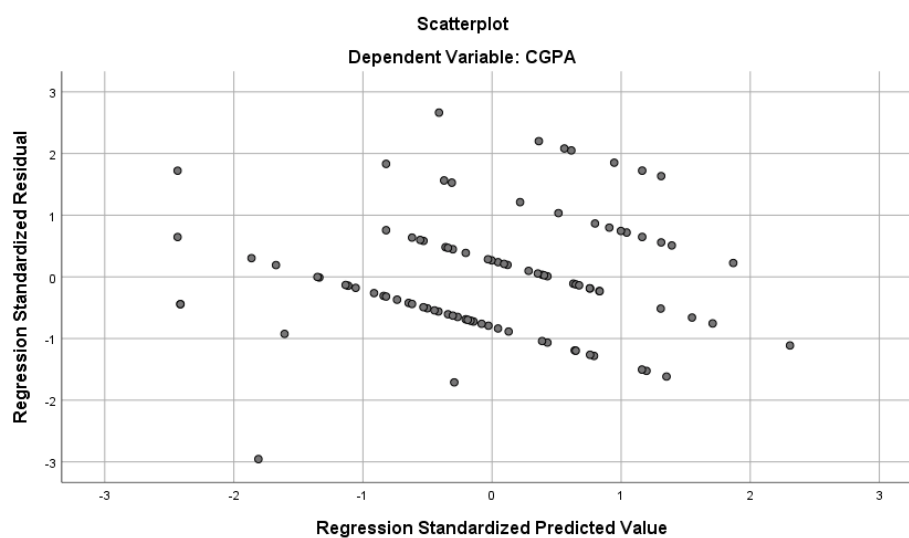


Figure 2. Scatter Plat

3. Results and Findings

A two-step hierarchical regression analysis was carried out with CGPA (cumulative GPA score) as the dependent variable (see Table 4). In step 1, with the components of emotional intelligence as predictors, the model was statistically significant ($p < .001$) and accounted for 17.3% of the variation in CGPA. In step 2, students' engagement scores were added and the model explained 22.9% of the variation in CGPA, that is, with a 6.2% change in ΔR^2 and this was statistically significant ($p < 0.01$).

Table 4. Hierarchical Regression Results: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.457 ^a	.209	.173	.973	.209	5.818	4	88	.000
2	.520 ^b	.271	.229	.940	.062	7.347	1	87	.008

a. Predictors: (Constant), RM, SEA, ESM, EA

b. Predictors: (Constant), RM, SEA, ESM, EA, TOTENG

e. Dependent Variable: CGPA

Table 5. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.025	4	5.506	5.818	.000 ^b
	Residual	83.287	88	.946		
	Total	105.312	92			
2	Regression	28.511	5	5.702	6.450	.000 ^c
	Residual	76.801	87	.883		
	Total	105.312	92			

a. Dependent Variable: CGPA

b. Predictors: (Constant), RM, SEA, ESM, EA

c. Predictors: (Constant), RM, SEA, ESM, EA, TOTENG

Results depicted in Table 5 show that ANOVA testing indicates that the regression equation predicts better than would be expected by chance. The F-value = 6.450 with an associated probability of Sig P. = 0.000 < α = 5%.

Table 6. Regression Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	3.914	.964		4.060	.000		
EA	.015	.050	.033	.312	.756	.792	1.263
SEA	.204	.046	.442	4.430	.000	.902	1.109
ESM	.048	.047	.108	1.021	.310	.799	1.251
RM	-.167	.061	-.321	-2.724	.008	.647	1.545
2 (Constant)	3.051	.984		3.100	.003		
EA	.000	.048	.000	.003	.997	.781	1.281
SEA	.180	.045	.390	3.960	.000	.866	1.154
ESM	.017	.047	.038	.357	.722	.751	1.332
RM	-.155	.059	-.299	-2.617	.010	.644	1.554
TOTENG	.040	.015	.263	2.711	.008	.893	1.120

Note. a. Dependent Variable: CGPA.

4. Discussion

This study aimed at examining the incremental effect of students' engagement on students' academic achievement over and above emotional intelligence. Since the variables involved are more qualitative in context, standardized coefficients are chosen in the analysis of the results.

From Table 6, the β coefficients for the five predictors of academic achievement were as follows; Emotional Awareness (EA), $\beta = 0.000$, $t = 0.003$, $p = 0.997$: not significant; Social Emotional Awareness (SEA), $\beta = 0.390$, $t = 3.960$, $p = 0.000$: significant; Emotional Self-Management (ESM), $\beta = 0.038$, $t = 0.357$, $p = 0.722$: not significant; Relationship Management (RM), $\beta = -0.299$, $t = -2.617$, $p = 0.010$: significant; Total Engagement (TOTENG), $\beta = 0.263$, $t = 2.711$, $p = 0.008$: significant.

Therefore, the best fitting model for predicting academic achievement measured by CGPA from the analysis above would be the linear combination of the, social emotional awareness of the student, relationship management of the student, and total engagement of the student.

4.1 The Model [Standardized]

Y (CGPA) = β_1 (Social Emotional Awareness) + β_2 (Relationship Management) + β_3 (Total Engagement)

Where, β_1 , β_2 and β_3 are respectively 0.390, -0.299, and 0.263.

4.2 Hypotheses Testing

H1: EI scores predict academic achievement (AA) score.

H2: Student Engagement (SE) shows an incremental validity and will predict Academic Achievement (AA) over and above Emotional Intelligence (EI).

Results support the first hypothesis (H1) partially whereby emotional intelligence predicted academic achievement along two domains namely “Social Emotional Awareness” (SEA) and “Relationship Management” (RM) due to the fact that the other two domains of emotional awareness “Emotional Awareness” (EA) and “Emotional Self-Management” (ESM) were statistically not significant in the regression model; the result is partly in accordance with other research (Kasa & Inn, 2013). However, strongly fits the research outcomes related to critical thinking and academic performance whereby critical thinking is highly related to motivation and empathy (RM). (Wibrowski, Matthews, & Kitsantas, 2017; AkbariLakeh, Naderi, & Arbabisarjou, 2018; Hasanpour, Bagheri, & Ghaedi, 2018)

On the other hand, the second hypothesis (H2) is not rejected and confirms the fact that student engagement shows an incremental validity and will predict academic achievement over and above the two domains representing emotional intelligence. In fact, the variable TOTENG was statistically significant. This result is in agreement with Ricketts and Rudd (2004).

The aforementioned results can be explained by considering the context of the study. Lebanese students who constitute part of the Lebanese population belong on the average to a conservative society that is reserved and where the expression of self and emotions is deemed too bold; whereas social relations and communication with others take precedence. This result reverberates with Mackey et al. (2014; citing Jabbra, 1989) whose study affirmed that Lebanese society places a special emphasis on social conformity. Furthermore, Lustig and Koester (2006) and Ghosn (2009) argued that in societies characterized by a collectivist orientation, the welfare of the group takes priority over that of the individual. Hence, according to Kaddoura and Sarouphim (2019), importance is not given to the individual but rather to togetherness and social bonds.

In an academic setting, both social and emotional awareness with relationship management help students communicate better with their classmates and teachers and manage their interpersonal relationships which can advance and improve their learning and achievement. Results of this research may encourage higher education policy makers and managers to introduce strategies to increase emotional intelligence in students by making available training or activities in this regard (e.g., Machera & Machera, 2017).

As per student engagement, prior research studies asserted that students’ engagement has been identified to positively affect students’ academic achievement (Ricketts & Rudd, 2004; Chang et al., 2016; Maguire et al., 2017; Lei et al., 2018). The results of the current study affirm this conclusion and add to the literature on the association between students’ engagement and students’ achievement by confirming its incremental effect to the construct while controlling for emotional intelligence. Consequently, students high on social and relational emotional intelligence and who engage positively with their academic life are more likely to be high achievers. Higher education institutions are thus urged to analyze the dynamics of students’ engagement, and to instill measures through which it is developed and implemented (e.g., Collaco, 2017).

5. Conclusion

A considerable number of research studies have investigated the factors influencing students' academic achievement. Emotional intelligence and students' engagement have been two fields undergoing continuous research and examination. The merit of the current research is many fold; being one of the first studies in Lebanon on the topic, contributing and adding to the body of knowledge new parametrically validated outcomes, and acting as a motivator for further research. However, there are also certain limitations to the work manifested in the small sample of students, narrow circle of participating universities, and lack of qualitative inputs from Lebanese academic experts on the topic. That said, the outcomes are not generalized but provide additional insight on the incremental effect of students' engagement on students' academic achievement over and above emotional intelligence and calls for higher education institutions and policy makers to provide and/or adjust their academic and non-academic activities to reinforce a constructive and productive students' learning experience. Future research is motivated based on the aforementioned limitations.

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