Inteligencia emocional y motivación académica en estudiantes de nivel medio superior con adecuado promedio académico

Emotional intelligence and academic motivation in high school students with adequate grade point average

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Resumen

Introducción: En muchas poblaciones y grados escolares, se ha comparado el rendimiento académico en estudiantes de acuerdo a su sexo. La inteligencia emocional se ha relacionado con el rendimiento académico, sin embargo, incluso en estudiantes con un promedio de calificaciones adecuado, esta y otras variables, como la motivación, podrían estar involucradas. El objetivo del estudio fue evaluar la relación entre la inteligencia emocional y la motivación académica de acuerdo con el sexo en estudiantes con un promedio de calificaciones adecuado.

Método: Realizamos un estudio transversal en 119 estudiantes de nivel medio superior (75 mujeres y 44 hombres) de la Universidad De La Salle Bajío. Se aplicó el Inventario de Cocientes Emocionales en su Versión para Adolescentes. En cada participante se obtuvo el promedio de calificaciones del último semestre y el rendimiento académico.

Resultados: En las mujeres se identificó mayor promedio de calificaciones y rendimiento académico, pero un menor manejo del estrés y estado de ánimo que en los hombres. La

motivación académica (r = 0.24; p = 0.008), el manejo del estrés (r = 0.18; p = 0.05), la adaptabilidad (r = 0.19; p = 0.03) y el cociente emocional total (r = 0.19; p = 0.03) se relacionaron positivamente con el rendimiento académico, mientras la relación de la edad fue negativa con el rendimiento académico (r = -0.23; p = 0.01). La motivación académica fue la única variable relacionada tanto con el promedio de calificaciones (r = 0.21; p = 0.02) como con el rendimiento académico en todo el grupo. En los hombres, no se encontraron variables relacionadas con el promedio de calificaciones. Sin embargo, la motivación académica (r = 0.35; p = 0.02), la inteligencia interpersonal (r = 0.33; p = 0.02), el manejo del estrés (r = 0.32; p = 0.03), la adaptabilidad (r = 0.52; p = 0.0001), el estado de ánimo (r = 0.40; p = 0.006), la impresión positiva (r = 0.31; p = 0.04) y el cociente emocional total (r = 0.43; p = 0.003) se relacionaron positivamente con el rendimiento académico. En las mujeres, solo el manejo del estrés se relacionó con el promedio de calificaciones y el rendimiento académico (r = 0.23 y r = 0.24; con p = 0.04 en ambos casos), respectivamente.

Discusión o Conclusión: Los resultados muestran un mayor rendimiento académico en mujeres que en hombres, incluso en aquellos estudiantes con un rendimiento académico adecuado. La inteligencia emocional participa de forma diferenciada por sexo en los estudiantes de nivel medio superior y solo el manejo del estrés parece estar relacionado con el rendimiento académico en las mujeres. Estos resultados son útiles para centrarse en programas y asesoramiento en esta población para aumentar las competencias emocionales según el sexo.

Palabras clave: inteligencia emocional; motivación académica; estudiantes; sexo; educación media superior

Abstract

Introduction: In many populations and school grades, the academic performance has been compared in students according to their sex. Emotional intelligence has been related to academic performance, however even in students with adequate grade point average, this and other variables such as motivation, could be involved. The objective was to evaluate the relationship between emotional intelligence and academic motivation in men and women students with adequate grade point average.

Method: We performed a cross sectional study in 119 high school students (75 women and 44 men) from the Universidad De La Salle Bajio. The Emotional Quotient Inventory in its Version

for Adolescents was applied. In each participant the average educational school level and academic performance was obtained.

Results: In women higher grade point average and academic performance but lower stress management and general mood than in men were found. Academic motivation (r=0.24; p= 0.008), stress management (r=0.18; p= 0.05), adaptability (r=0.19; p= 0.03) and total emotional quotient (r=0.19; p= 0.03) were positively related to academic performance, while age was negative related to academic performance (r=-0.23; p= 0.01). Academic motivation was the only variable related to both, grade point average (r=0.21; p= 0.02) and academic performance in the entire group. In men, no variables related to grade point average were found. However, academic motivation (r=0.35; p= 0.02), interpersonal intelligence (r=0.33; p= 0.02), stress management (r=0.32; p= 0.03), adaptability (r=0.52; p= 0.0001), general mood (r=0.40; p= 0.006), positive impression (r=0.31; p= 0.04) and total emotional quotient (r=0.43; p= 0.003) were all positively related to academic performance. In women only stress management was related to grade point average and academic performance (r=0.23 and r= 0.24; p=0.04 in both cases), respectively.

Discussion or Conclusion: The results show higher academic performance in women than in men, even in those students with adequate academic performance. Emotional intelligence participates in different mode by sex in high school students and only stress management seems to be related to academic performance in women. So, these results are useful to focus on programs and counselling in this population to increase emotional competences and academic motivation.

Keywords: emotional intelligence; academic motivation; students; sex; higher medium education

Introduction

Academic performance in high school students may be due to a number of different reasons such as parents' education level, parental profession, language, socioeconomic status, family support and home environment (Farooq, Chaudhry, Shafiq, & Berhanu, 2011), besides student´s characteristics. This is relevant, considering that a well-educated work force will help a nation's economy to prosper. Furthermore, it is believed, that education in general is linked with an individual's well-being and opportunities for better living (Battle & Lewis, 2002). However, other factors such as motivation and emotional intelligence have been related to optimal work functioning (Deci *et al*., 2001; Deci & Ryan, 2008a).

Emotional intelligence (EI), considered as the ability to recognize, understand and manage our own emotions and to recognize, understand and influence the emotions of others, contemplates the guidance of thoughts and actions. So, it refers as the interaction between emotion and cognition and is a crucial factor to explain an individual's functioning in all areas of life (Mikolajczak, Luminet, & Menil, 2006; Salovey & Grewal, 2005). For Goleman (1995), emotional intelligence consists in five components: 1) Knowing one's own emotions; 2) Handling these emotions; 3) Motivating oneself; 4) Recognizing others' emotions; and 5) Establishing relations. So, emotional intelligence is a permanent and continuous process that increases competences as a crucial element of human development to empower individuals for life. It favors people employing their emotions to solve problems, to better confront stressful events and to efficiently adapt to their surroundings, increasing personal and social well-being (Zeidner, Matthews, & Roberts, 2012).

There is controversy about difference in EI by sex; some authors have reported that females better manage emotions (Extremera *et al*., 2006), while others studies have showed that boys seem to have higher EI than girls (Petrides, 2016). Thus more information and research works that compare these variables according to gender, are necessary.

In Mexico, the high school terminal efficiency considered as the number of students who graduate from a certain educational level in a school year, for every hundred students of the initial school cohort of the same level was 65.5% in the 2016 course. According to official data, the main reason why children aged 12 to 14 years leave school is due to lack of interest, aptitude or requirements to enter school (48.3%) and lack of economic resources (14.2%). In adolescents, from 15 to 17 years old, the main cause of non-attendance is the lack of interest, aptitude or requirements to enter school (43.5%). Furthermore, according to the Instituto Nacional para la

Evaluación de la Educación (INEE), 14.4% abandon their studies for work, followed by those who do so for lack of economic resources (12.7%) (INEE, 2018).

Motivation, according to Tohidi and Tarokh (2006) is inspired in the Latin term "Move", and is considered as the driver of guidance, control and persistence in human behavior. It is like a force which makes people to behavior in a special way and intensity to obtain the highest benefits for an individual or for the organization. Although it has been considered according to the Self-Determination Theory that humans have an intrinsic desire to learn (Deci & Ryan, 2008b), not a simple relationship exists between motivation and academic performance. Some students take a surface approach while others take a deep approach with the intention of learning for themselves (Entwistle, 2009). Furthermore, motivation is affected by experiences of learning and it is not a fixed quality of the individual (Tohidi & Jabbari, 2012).

We hypothesized that there is a difference between EI and academic motivation in men compared with women high school students with adequate grade point average. This paper focus on the comparison of these variables in a group of Mexican students to support programs and counselling in this population.

Method

We performed a cross sectional study in high school male and female students with adequate grade point average ($\geq$ 8/10) in the last academic period. They were identified from seven complete classrooms in a private school as a convenience sample. This sample represents ~25% of all the students. The participants were told verbally about the ethical conditions or requirements for being involved in the study. It was centered on issues of voluntary participation, privacy, confidentiality, physical and psychological harm. High school students administered self-report questionnaires in class during school hours. The administrative area provided the average score during the last scholar period of the student and variables of academic performance.

To evaluate EI, we used the BarOn Emotional Quotient Inventory: Youth Version (BarOn, 2000). The instrument uses a 4-point Likert style format (very seldom true of me, seldom true, often true, and very true). It consists of the following scales: intrapersonal, interpersonal, adaptability, stress management, general mood, and total EQ. The first area, intrapersonal skills, involves emotional self-awareness, self-regard, self-actualization, and independence. The second area, interpersonal skills, involves interpersonal relationships, social responsibility, and empathy. Third, its adaptability scales measure problem solving, reality testing, and flexibility. The fourth area, stress-management, includes stress tolerance and impulse control. This questionnaire has been validated in Mexico by Ruvalcaba *et al*. (2014). They found a 0.922 Kaiser-Meyer-Olkin (KMO) index and after the exploratory factor analysis it showed a distribution of items according to the theoretical model. The Cronbach's alpha was between 0.62 to 0.87 in all the factors, so it was concluded that the scale had adequate psychometric properties to be used in Mexican contexts.

Motivation was evaluated by a Visual Analogue Scale from 0 to 10 points, consists of a thermometer line with the endpoints defining extreme limits such as 'no motivation at all' and 'motivation as best as it could be' for studying. We also used a measure of motivation toward education namely the Échelle de Motivation en Éducation (EME) based on the principles of self-determination theory validated in Spanish with the Cronbach's alpha between 0.76 to 0.84 in all the sub-scales. Also a good temporal stability over a period of 7 weeks with a test-retest correlation between 0.69 and 0.87 was found. (Núñez-Alonso, José Martín-Albo & Navarro-Izquierdo, 2005; Stover, de la Iglesia, Rial-Boubeta & Fernández-Liporace, 2012). This questionnaire has 28 items distributed in seven subscales that respond to the dimensions referenced in self-determination theory: Intrinsic Motivation orientation towards stimulating experiences; Intrinsic Motivation orientation towards achievement; Intrinsic Motivation orientation towards knowledge; Extrinsic Motivation identified regulation; Extrinsic Motivation introjected regulation; Extrinsic Motivation external regulation, and Amotivation.

Academic performance was evaluated according to Reyes (2006) formula as follows:

Academic performance= percentage of credits accumulated + W
W= (20*average score during the last scholar period)-100)

To analyze the existence of statistically significant differences between men and women, unpaired Student's t-test or Mann-Whitney U test was perfomed to compare continuous variables with normal or skewed distribution, respectively, and Chi-square test was performed to compare proportions between groups. A p <.05 value was considered significant and the analysis was carried out in the STATISTICA software, version 11.0.

Results

We included 119 high school students (75 women and 44 men) from the Universidad De La Salle Bajio. We found higher grade point average and academic performance but lower stress management and general mood in women than in men (Table 1).

Table 1. Comparison of general characteristics and emotional intelligence in men (n=44) and women adolescents (n=75) with grade point average ≥ 8.

Variable	Women students Mean ± SD	Men students Mean ± SD	P
Age (years)	16.2 ± 0.6	16.5 ± 1.0	.07
Grade point average	8.7 ± 0.50	8.5 ± 0.39	.03
Academic performance	174.2 ± 10.0	167.8 ± 12.7	.002
Academic motivation	8.4 ± 1.3	8.5 ± 1.2	.64
Emotional and social intelligence			
Intrapersonal	99.7 ± 15.5	102.1 ± 14.6	.42
Interpersonal	99.3 ± 14.5	100.1 ± 16.1	.79
Stress management	98.4 ± 14.9	106.9 ± 14.3	.002
Adaptability	100.9 ± 15.6	104.7 ± 13.5	.18
Total EQ	99.4 ± 15.0	105.0 ± 15.7	.06
General mood	97.4 ± 14.3	104.0 ± 12.4	.01
Positive impression	98.3 ± 13.0	100.7 ± 14.6	.36

Note: EQ: Emotional Quotient

Only one motivation was reported in 69 (57.9%), 2 in 33 (27.7%), 3 in 7(5.8%), 4 in 5 (4.2%), and 6 in 2(1.7%) in the entire group, without difference by sex (p=0.41). Neither a difference was

found in total motivation as the sum of all types of motivation (34.2 ± 5.0 vs. 35.1 ± 4.4; p=0.35) for women and men, respectively.

Intrinsic Motivation orientation towards stimulating experiences was the lowest reported, while Extrinsic Motivation external regulation was the highest (Table 2).

Table 2. Comparison of type of motivations between sex.

Motivation type	Women n=75 n (%)	Men n=44 n (%)	p
			.41
Extrinsic Motivation identified regulation	21(28.0)	16(36.3)	
Extrinsic Motivation external regulation	51(68.0)	33(75.0)	
Extrinsic Motivation introjected regulation	17(22.6)	5(11.3)	
Total extrinsic motivation	89 (118.6)*	54 (122.7)*	
Intrinsic Motivation orientation towards knowledge	23(30.6)	12(27.3)	
Intrinsic Motivation orientation towards stimulating experiences	4(5.3)	3(6.8)	
Intrinsic Motivation orientation towards achievement	8(10.6)	9(20.4)	
Total intrinsic motivation	35 (46.6)*	24 (54.5)*	

*Note: Students in general have more than one type of motivation.

Academic motivation, stress management, adaptability and total emotional quotient were positively related to academic performance, while age was negative related to academic performance in all the students. Academic motivation was the only variable related to both, grade point average and academic performance (Table 3).

Table 3. Correlation between grade point average and academic performance with academic motivation, age and emotional intelligence in the entire group of adolescents.

Variable	Grade point average		Academic performance	
	r	p	r	p
Age (years)	-0.15	.09	-0.23	.01
Academic motivation	0.21	.02	0.24	.008
Stress management	-	-	0.18	.05
Adaptability	-	-	0.19	.03
Total EQ	-	-	0.19	.03

In men, no variables related to grade point average were found. However, academic motivation, interpersonal intelligence, stress management, adaptability, general mood, positive impression and total emotional quotient were positively related to academic performance (Table 4).

In women only stress management was related to grade point average and academic performance (r=0.23 and r= 0.24; p=0.04 in both cases), respectively.

Table 4. Correlation between academic performance with academic motivation and emotional intelligence in men students.

Variable	Academic performance	
	r	p
Academic motivation	0.35	.02
Interpersonal intelligence	0.33	.02
Stress management	0.32	.03
Adaptability	0.52	.0001
General mood	0.40	.006
Positive impression	0.31	.04
Total EQ	0.43	.003

Discussion

The Mexican Education Sector Program 2013-2018, assumed the need to minimize the number of students who drop out their studies at high school. (Secretaría de Educación Pública [SEP], 2013), which was 15.5% in the scholar period 2015-2016 (INEE, 2017a). However, in our country many students who can access do not have the best conditions to remain, achieve successful educational trajectories, graduate and specify the learning of knowledge and development of relevant skills, a fact that is always reflected against the most disadvantaged (INEE, 2017a).

We found that even in high school students with adequate grade point average, a higher grade point average was identified in women than in men, as previously reported in certain instances (Stoet & Geary, 2015). In our country, a higher percentage of women reached at least levels II and III in the PLANEA 2017 test (70 and 41%, respectively), compared to men (62 and 34%, respectively) (INEE, 2017b). However, lower stress management and general mood in women than in men was identified. This results are in accordance with reports of higher stress and mental health patterns worldwide in young women than in men (Moksnes, Rannestad, Byrne & Espnes, 2011; Sweeting, West & Der, 2007; Torsheim, Ravens-Sieberer, Hetland, Valimaa, Danielson, & Overpeck, 2006). Also it has been described greater self-criticism (Franzoi, Vasquez, Frost, Sparapani, Martin & Aebly, 2012) and fear of failure (Clarke, 1986; Miller, Finley y Mckinley, 1990) in women than in men. However, many of these differences diminish or even disappear in countries with a high level of gender development (Torsheim *et al*., 2006), supporting that macro-level factors need to be taken into account in the study of sex differences in psychological health and behavior.

In the entire group, academic motivation, stress management, adaptability and total emotional quotient were positively related to academic performance, while age was negative related to academic performance, and academic motivation was the only variable related to both, grade point average and academic performance. Furthermore, extrinsic motivation was the predominant in the entire group without difference by sex. This last point is relevant because prevalent individual factors related to drop out at high school are demotivation and disinterest in school (SITEAL, 2013; Weiss, 2015). It is considered that very little if any learning can occur unless students are motivated on a consistent basis. Although the key ingredients that impact motivation, in addition to that of the student, are the teacher, the content, the method/process, and the environment; motivation is optimized when students are exposed to a large number of motivating experiences. Some authors see internal-external motivation as a harmonious whole (Deci, Vallerand, Pelletier & Ryan, 1991). While others, considered that students who are motivated externally are at a greater risk of performing lower academically than intrinsically motivated students because their motivation is entrenched in the environment rather than within themselves (Lee, 2016). On science achievement, Lee (2016) found that intrinsic motivation had a strong and positive effect on engagement ($\beta = .93$, $p < .001$), whereas extrinsic motivation had a weak and non-significant direct effect on engagement ($\beta = .04$, $p = .10$). However, some

researchers support that aspects of extrinsic motivation are also beneficial (Cerasoli *et al*., 2014; Cury *et al*., 2002). Thus, competition and external rewards seem acceptable approaches to stimulate students' drive in school. But according to our results, we have to identify in the society, factors related to low intrinsic motivation which was a general variable in the entire group of students and strategies to increase it. This includes creating a classroom culture increasing curiosity and interest in the topic, and minimizing classroom structures that cultivate students' orientation toward displaying good and evading bad performance.

The present study has its weak points: it has a small sample size and longitudinal studies are necessary to evaluate the effect of socio-emotional development and motivation in academic performance adjusted to other variables such as economic, family and other variables in the social context.

However, as a conclusion, these data support future perspectives and that even in students with adequate academic performance, it is worth stating the need to implement specific educational programs that work building socio-affective development and motivation.

Acknowledgments

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