

Relationship between Emotional Intelligence and Academic Achievement in Emerging Adults: A Systematic Review

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Abstract

Emotional intelligence (EI), distinct as a cross-section of integrated emotional and social capabilities and skills that regulate how successfully people recognize and express their emotions, recognize others feelings and relate with them, and handle with daily stresses or pressures, effectively. The key purpose of this article is to systematically review the relationship between emotional intelligence and academic achievement in emerging adults (18-25 years old) by reviewing five widely used emotional intelligence (EI) measurements (EQ-I, ECI, TEIQue, MSCIT & WLEIS). The Google Scholar, Science Direct (Elsevier), ERIC, Scopus, and Web of science have been searched for relevant articles in English. After, thorough literature search, 786 articles have been identified. After exclusion of duplicates, title and abstract review, 46 articles have been read in full and out of this, 26 are considered for systematic review, comprising 8885 participants. Eight articles have used ability based measures of emotional intelligence (MSCIT, & WLEIS) and eighteen have used self-reported EI measures (EQ-I, ECI & TEIQue). Thirteen studies have reported a significant positive relationship between emotional intelligence (EI) and academic achievement (AA), two studies demonstrate that the relationship between EI and AA is strong, but it is indirect, two studies have found an insignificant but negative association and two studies demonstrates no relationship between EI and AA. Moreover, according to the result of seven studies, some EI components have been found significant in their relationship with AA. Subsequently, the relationship between EI and AA is supported by this systematic review. The results provide a base for a research intended at determining the relationship between emotional intelligence and academic achievement in emerging adulthood.

Key words: Emotional intelligence (EI), Academic achievement (AA), Emerging adults (EA)

Introduction

Emotional Intelligence is a theme that has received the critical acknowledgment from psychologists, researchers in psychology, education, health studies, and business management over the last two decades. The very first paper on emotional intelligence was published by Mayer and Salovey in 1990 and subsequently, the scholastic world has experienced dynamic progressions on models and measurements of emotional intelligence.

Salovey and Mayer (1990) defined emotional intelligence in their first article as “the abilities to accurately perceive emotions, to access and generate emotions so as to assist thoughts, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth” (p. 5). In the light of Salovey and Mayer’s theory, emotional intelligence signifies a type of problem-solving capability comprising emotions (Cote, 2014). Afterwards, Bar-On (1997) took a comprehensive perception and designated EI as “a cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands” (p. 14).

Prior literature has drawn a difference between ability measures of emotional intelligence and trait measures of emotional intelligence (Brackett & Mayer, 2003; Cote, 2014; LaPalm et al., 2016; Petrides et al., 2007; & Andrei et al., 2015). Ability EI measure MESIT, as espoused by Mayer and Salovey (1997) and based on four aspects try to capture the underlying skill to perceive, use, understand, and regulate emotion. Similarly, Wong and Law (2002) developed the Wong and Law Emotional Intelligence Scale (WLEIS). It is a self-reported 16-item emotional intelligence measure based on the ability model. Bar-On’s Social-Emotional Intelligence, Goeman’s EI Competency models and Petridez TEIQue are categorized as trait EI or mixed models (LaPalm et al., 2016). Petrides, Perez-Gonzalez, and Furnham (2007) abstracted Trait EI as “a constellation of emotion-related self-perceptions and dispositions at the lower levels of personality hierarchies” (p. 26). According to Andrei et al. (2015) trait EI is theorised as the collective emotional change inside the personality domain that is tested by lower order aspects. Farnia and Nafukho (2016) categorized trait EI as personality-related, self-perceived skills which are measured through self-report tests, and ability EI as cognitive-emotional skills measured through performance-based tests. Trait-based emotional intelligence is theorized on the basis of personality, however, the ability-based emotional intelligence goes to the psychometric intelligence field. Detail of measures are given in below (Table 1).

Table 1: Review of the Framework of Emotional Intelligence Measures

Measure	Theorist	Mode of measure	Description
MSCIT	Mayer & Salovey	Ability based	This ability based measure has 141 items with consent scoring. Particular tasks are used to measure levels of ability of each branch of emotional intelligence.
WLEIS	Wong & Law	Ability based	A self-reported 16-item EI measure which also based on the ability model and has four dimensions.
EQ-i	Bar-On	Trait based	This self-reported inventory has 133 items which measure total EQ score and respectively of the 5 components of the Bar-On model.
(ECI)	Boyatzis et al.	Trait based	A multi-rater 110 item self-report measurement that offers scoring on 4 domains.
TEIQue	Petrides	Trait based	This inventory includes 153 items, offering overall scores, on 15 aspects, and also on 4 domains.

Prior literature indicates that emotional intelligence (EI) is a significant indicator of future achievement in every walk of life, as well as academic achievement, and career success (Saarni, 1999; Goleman 1995; Li, Wei Ting & Wang, 2012; Bar-On, 2002). This popular significance of EI was turned into the relation between academic achievement and emotional and social skill by Goleman in 1995, who proposed that emotional intelligence was more vital than IQ in predicting success in life, as well as academic achievement (Parker, 2009). Several studies have specified that the EI skills help to predict academic achievement and future success. Moreover, these achievements have offered a way to understand why emotional intelligence is important for college or university students (Bar-On, 1997; Brackett, Mayer, & Warner, 2004; Mayer, Roberts, & Barsade, 2008; Parker, Summerfeldt, Hogan, & Majes, 2004). In fact, it is the time period characterized by Arnett in his theory of Emerging adulthood (EAH) as the time of transition (18–25 years). This range of age is common in under graduate and post graduate students. Arnett (2000) has characterized students, aged 18 to 25 as emerging adults. According to the theory of emerging adulthood, it is the developmental phase of life in which emerging adults do neither consider themselves as adolescence nor adulthood. They investigate their individuality for work, love and perception of the world, concentrate on the self and perceive instability because of changes in the status, relations, work, and education. Accordingly, this stage is called a period of potential outcomes (Arnett, 2014). However developmentally, emerging adults confront important social and emotional stressors, which affect the viability of individual in the college environment and their academic achievement (Moore, 2012). Rode et al. (2007) additionally layout various reasons why EI is liable to be a virtuous predictor of university students' academic success. The academic stresses and pressures at the college or university level can be a great deal to promote anxiety. Students confront various assignments from various lecturers with changing and varied expectations. According to Parker (2009), it can be an especially troublesome and stressful for some emerging adult's students to assign proper time between academic and non-academic interests when making the move from secondary school to college or university.

A great number of empirical studies have been conducted in different settings and times to examine the relationship between EI and AA. Low et al. (2004) states that "emotional knowledge, skills and intelligence hold a major key to improving education and helping students, teachers, faculty, and student development professionals to attain higher degrees of achievement, career success, leadership, and personal well-being" (p.2). Therefore, Goleman (1995) proposed that emotional intelligence can predict academic success better than traditional measures of intelligence.

Bar-On (2000) who is one of the proponents and leading researchers in the study of emotional intelligence also recognizes the influence of this non-cognitive ability in the success of a student's life. He suggests that "ability to manage one's emotions, to be able to validate one's feelings and to solve problems of a personal and interpersonal nature are important for being academically successful; additionally, academic performance appears to be facilitated by being able to set personal goals as well as to be sufficiently optimistic and self-motivated to accomplish them" (2005, p. 14-15). Bar-On (2006) specifies that emotionally intelligent people are determined and enthusiastic in their life. Numerous studies have examined the emotional intelligence relationship with academic achievement within different academic settings and cultural context. (Table 3& 4).

As education attempts to produce individuals with these physiognomies, it is need of the time for the educators to think about the emotional traits of students. Hence, this study

offers systematic review of the literature to focus on the relationship of EI to the academic achievement for the last ten years in which no review study has ever been conducted. To the best of researcher's knowledge, this is the first systematic review of the evidence on EI in relation to emerging adult's academic achievement. This review paper distinguish and organize sample size, research instruments, data analysis techniques and results on academic achievement and emotional intelligence relationships in emerging adulthood over the past 10 years. Furthermore, this study also differentiates the types of EI and academic achievement measures to assess emotional intelligence and academic achievement, respectively. In order to observe the trends and practices in the field of EI and academic achievement, frequently used data analysis methods and different EI measurement instruments are also described.

Method

In order to identify the articles related to the EI and AA in the age group of 18-25 years, Google Scholar, Web of science, Scopus, ERIC and Science Direct article databases are prudently searched from the period of 2007 to 2016 intended for empirical studies published in English language and in scientific journals. A data abstraction table was developed to qualify collection and layout of material appropriate to the review. Important articles were marked when they defined "emotional intelligence", "emotional skills" or "emotional competencies" and "academic achievement", "academic performance" and "academic success", "GPA", "Undergraduate students", as a keyword used in their research article title or abstract.

<p>Data base: Google scholar, Web of science, Scopus, ERIC and Science direct</p> <p>Search: "emotional intelligence", "emotional competences"</p> <p>And "University students", "emerging adults", "Undergraduate students"</p> <p>And "GPA, "Academic achievement, "Academic success", Academic performance"</p> <p>Limiters: All English journal articles, from 2007 to 2016</p> <p>786 articles found</p> <p>46 articles studied full</p>

Fig. 1. Example of a full search strategy

Inclusion and Exclusion Criteria

The first condition intended for inclusion in this systematic review is that only empirical studies related to emotional intelligence and academic achievement are included and theoretical, reviews, and meta-analyses papers are excluded. The second condition is to include the studies which have assessed emotional intelligence based on a model of emotional intelligence. This criterion helps us to eliminate studies that have used measures not grounded in emotional intelligence theory, such as those studies that examined the relationship between EI and AA by using tools not dealt with our EI measures framework. Additionally, this review paper involves the studies that have assessed three or four emotional skills, by using the EI measures in our framework.

The third condition is to include only those empirical research papers in the present systematic analysis if they fulfil the following four criteria.

(1) Only studies published between 2008 and January 2016 are deliberated for insertion. Such a time frame is performed because in 2007, 2008 and 2009 some review, meta-analysis and theoretical papers studied the EI history and its relation to different aspect and also with academic achievement (Berrocal & Pacheco, 2006; Fernandez, Extremera, & Natalio, 2006; Parker, Donald, Saklofske, Wood, & Collin, 2009; Qualter, Gardner, Whiteley, & Helen, 2007).

(2) Studies are incorporated if they dignified the trait EI theory by using Bar-On EQ-I, Goleman ECI and Petrides (TEIQue) measurements and to measure ability EI theory by using Mayer and Salvoy MECIT, and Wong and Law (WLIS).

(3) Studies that used emerging adult as participants (aged 18-25).

(4) Those studies which examined the minimum three or four competencies of emotional intelligence are encompassed in this systematic analysis (Martins, Ramalho, & Morin, 2010; Garcia-Sancho, Salguero, & Berrocal, 2014). This condition is executed to confirm that the EI construct was adequately signified and invoke in the research studies.

(5) Academic achievement had to be taken as a variable in the study and measured through GPA, CGPA, APM, continuous assessment (CA), final examination (FE) results, or Assignment grade.

(6) The present review paper is reserved for merely English language journals.

Literature searches

In prior literature of EI and AA, different researchers and scholars have used different theories, samples and measures to explore and understand the relationship between EI and AA, therefore, to provide comprehensive information regarding EI theories, their measures, data analytical techniques and results. This study has made an extensive search for appropriate research articles from the five academic databases. Emotional intelligence and academic achievement were the two keywords used to perform the search. Database searches recognized 786 related studies: 304 in Google scholar, 136 in Science direct (Elsevier), 104 in ERIC, 76 in Scopus, and 66 in Web of science. Exclusion of replicas (401), 385 potentially eligible studies were selected, on the basis of titles and the studying abstracts and 339 research articles excluded. Remaining 46 articles were fully read and 26 included. At this stage, mostly articles were excluded because they studied the one or two aspects of EI construct and sample age was greater than 25 years. Finally, twenty-five empirical articles that examined the relationship between EI and academic achievement selected for systematic analysis (detail in Figure 2)

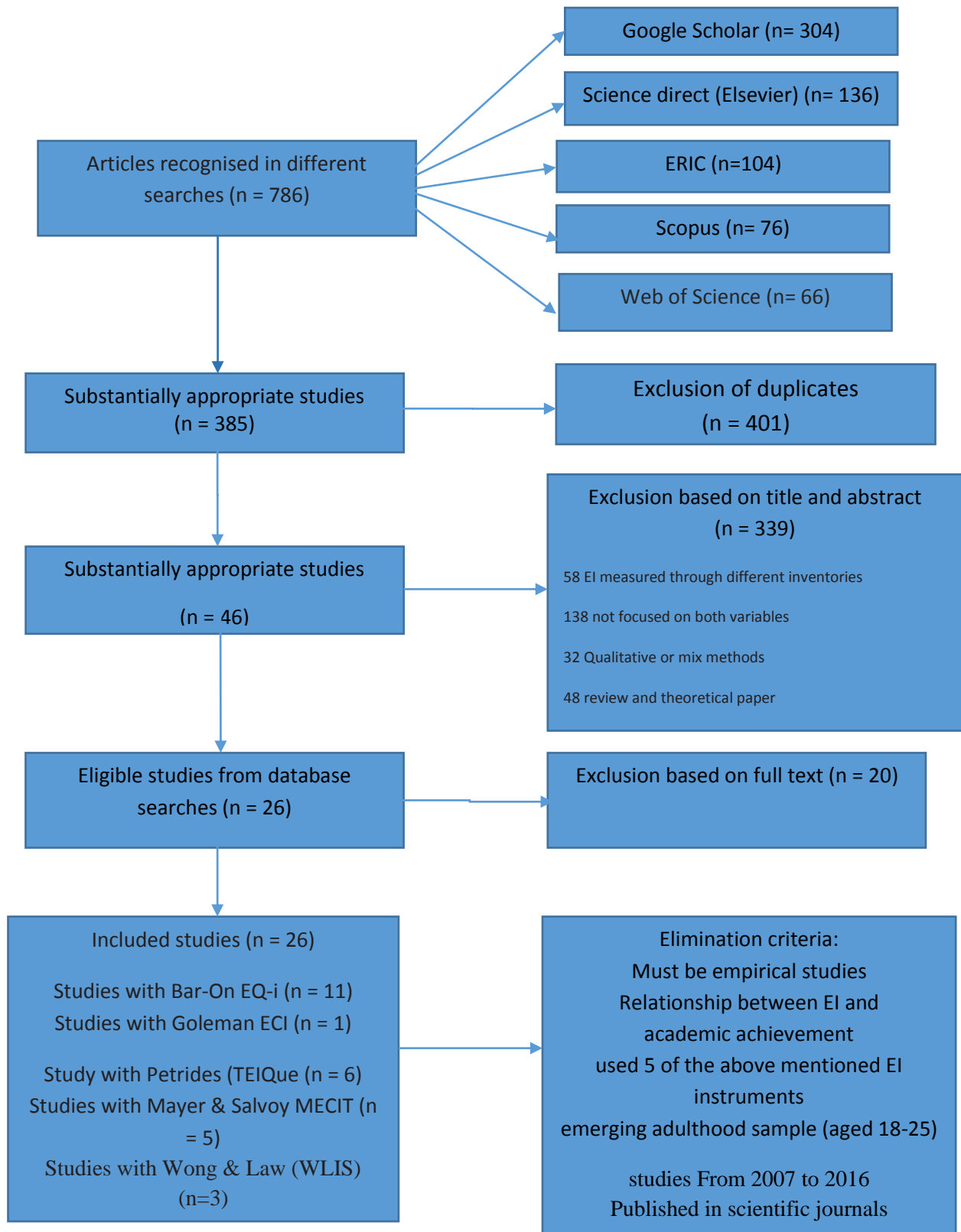


Figure 2: Flow chart of study selection

Results

Study characteristics

As distinguished above, models of EI are usually categorized into two major groups that can either be performance based (ability model) or self-reported (mixed model) which are based on the type of measures. Ability-based model provides a theoretical base to the MSCEIT, Version 2.0 (Mayer et al. 2002), and the WLEIS measure (Wong and Law EI Scale, 2002). Broadly used the self-reported trait based (mixed) model of emotional intelligence measures comprise Bar-On Emotional Quotient Inventory or EQ-I (Bar-On 1997), Emotional Competence Inventory (ECI, by Boyatzis et al. 2000) which is constructed on emotional competencies identified by Goleman (1998), and TEIQue, Trait Emotional Intelligence Questionnaire (Petrides, 2009).

This study has identified twenty-six studies based on the responses of 8885 participants, investigating the relationship between EI and academic achievement in emerging adults from 2007 to 2016. Seventeen, out of those studies, have assessed emotional intelligence with trait-based measures, whereas eight have assessed EI with an ability measure as shown in Tables 3 and 4. One article has used more than one EI measure (Brannick et al., 2013).

Table 2: EI measures used in the relationship of emotional intelligence and academic success

EI measures used	Total studies	Percent
Ability-Based	8	30.7%
MSCIT	5	19.2% of total
WLEIS	3	11.5% of total
Trait-based (mixed)	18	69.3%
EQ-i	11	42.3% of total
ECI	1	3.8% of total
TEIQue	6	23.2% of total
No. of studies	26	100%

Studies on Trait-based measures

In this study, the self-reported trait based (mixed) measures of emotional intelligence involve Bar-On Emotional Quotient Inventory or EQ-I (Bar-On 1997), Emotional Competence Inventory or ECI (Boyatzis, Goleman, & Rhee 2000) and Trait Emotional Intelligence Questionnaire or TEIQue (Petrides, 2009). Trait EI is theorized as personality-related, self-perceived skills measured through self-report tests (Farnia & Nafukho, 2016). By using these

measures different researchers have examined the association between emotional intelligence and academic achievement in emerging adulthood (Table 3).

Table 3: Studies on trait-based measures in alphabetical order

Investigator	Sample	Measurement scale	Analysis method	Results
Babelan & Moenikia (2010)	328 students from Payame Noor University. Iran. Average age 21.	(EQ-i) GPA	Multiple regression	Results specified that two EI components intrapersonal (0.220) and general mood (0.163) were positive predictor of AA and interpersonal (-0.368) affected negatively but significant, although stress management and adaptability weren't predictor of AA.
Carvalho & Colvin (2015)	353 undergraduate students at Prairie View A&M, University. Texas. Average age 20	Bar-On (EQ-i) GPA	ANOVA	Stress management skills generates a 61% variation in the dependent variable academic success (GPA). Stress Management Skills are the strongest predictors of academic success.
Durgut, Gerekan, & Pehlivan (2013)	177 students from turkey university. Average age 23	Bar-On EQ-i GPA	Regression	Regression analysis result showed the R coefficient (0.394) and R ² (0.15). Social Responsibility & Problem Solving have a positive effect while Independence, Self-Actualization and Flexibility sub-components of EI have a negative impact on the student's achievement.
Fallahzadeh (2011)	322 students of Sahid Sadoughi University of medical science, Tehran. Median age 22	Bar-On EQ-i:S GPA	T test And ANOVA	Moderate relationship (0.41) between EI and AA. Study concluded that relationship between EI skills and university students were positive and significant. Yet AA was strongly associated with two components of emotional intelligence(EI) (adaptability and stress management)
Fatima, Shah, & Kiani	100 students from Rawalpindi	Bar-On EQ-i	Multiple	Results indicated that there was Positive and significant relationship between emotional intelligence and academic achievement of the

(2011)	university Pakistan. Average age 21.	GPA	Regression	students.
Gilani, Waheed, Saleem, & shoukat (2015)	396 postgraduate students from five public sector universities. Pakistan. Average age 22	(TEIQue). GPA	ANOVA	Study founded a negative and insignificant association between EI and AA of postgraduate students.
Jaeger & Eagan (2007)	864 first-year students from public university in the southeast. USA. Average age 20.	(EQ-i-S) GPA	OLS regression	Over all EI increased student's performance, however, Interpersonal skills, Adaptability, and ability to manage stress were positively and significantly affected students' cumulative first-year GPAs. The full model has an R2 value of 0.40.
Laborde, Dossiville, & Scelles (2010)	219 students from University of Caen, France. Average age 19.5	TEIQue Assignment grade result (AGR)	MANOVA T-test	Results showed that EI was the positive and significant predictor of MCQ-Score. A significant change in MCQ-Score variance ($R = 0.18$, $R^2 = 0.02$; $t = 2.37$).
Meshkat (2011)	187 university students from Tehran. Average age 23	Bar-On (EQ-i) GPA	ANOVA	Results demonstrated no significant relationship between EI and AA. Coefficient of correlation was 0.161.
Nasir (2012)	100 students of International	Bar-On	Pearson correlatio	Study founded positive and significant relationship between EI and

	Islamic University, Islamabad. Pakistan. Average age 22	(EQ-i) CGPA	n	AA. (r= 0.29, p<0.01)
Oyewunmi, Osibanjo, & Adeniji, (2016)	152 final year undergraduates of a university in South-West, Nigeria. Average age 21.	Bar-On (EQ-i) CGPA	ANOVA	Results indicated that association between emotional intelligence and the academic achievement of university undergraduates was strong. Intrapersonal relationship (r= 0.34), Interpersonal relationship(r= 0.53), Adaptability (r= 0.41), Stress management (r= 0.14), general mood (r= 0.35).
Perera & DiGiacomo (2015)	470 freshmen enrolled at an Australian university Average age 19.7	TEIQue-SF GPA	SEM	Trait Emotional Intelligence was found to be indirectly associated with Academic achievement. The mediated effect of the TEI on AA via engagement coping (EC) was (Beta =. 329, 95% BC CI =0. 211, 0.446).
Pope, Roper & Qualter (2012)	135 undergraduate students in the UK Average age 20	(ECI-U II) APM	ANOVA	Results demonstrated that ECI five competencies grouped together significantly predicted APM, 15% of variance. Yet, individually Social Awareness (r = 0.217, p =0.039), conscientiousness (r = 0.352, p =0.001), adaptability (r = .308, p = .003), empathy (r =0.246, p = 0.019), organisational awareness (r = 0.292, p = 0.005) and building bonds (r = 0.221, p = 0.036) were significant and positive.
Radfer et al. (2012)	150 medical students of Baqiyatallah	Bar-on EQ-i	Pearson test	Results indicated positive and significant relationship between EI score and AA. (P = 0.001, r= 0.305), individually, problem solving ability, stress tolerance and self-awareness fields- were highly

	University of Medical Sciences. Iran. Average age 20.7	GPA		correlated to the AA.
Saklofske et al. (2012)	163 students University of Edinburgh. UK Average age 20.3	Bar-on EQ-i GPA	SEM	Results showed only adaptability has positive and significant relation with AA. (r = 0.17, p< 0.05)
Sanchez-Ruiz, Mavroveli, & Poullis (2012)	323 university students in Cyprus. Average age 23	TEIQue-SF GPA	Regression	Result showed Trait EI was strongly associated with GPA (Beta= 0.24, p< 0.001), compared to the other study variables. Fluid intelligence and the Big-Five Personality dimensions.
Shiple, Jackson, Segrest (2010)	193 undergraduate student's south eastern university, USA. Average age 22	TEIQue SF GPA	ANOVA	Global emotional intelligence was not significantly associated with academic performance and GPA.
Yelkikalan et al. (2012)	559 students from five departments Çanakkale Onsekiz Mart University. Turkey. Average age 23	TEIQue GPA	Bivariate correlation	Study concluded that relationship between EI and AA was significant and positive and that virtually 11 % of change in AA can be explicated by emotional intelligence.

Abbreviations: EQ-I, Emotional Quotient Inventory (Bar-On, 1997); ECI, Emotional Competence Inventory (Boyatzis et al. 2000), TEIQue, Trait Emotional Intelligence Questionnaire (Petrides, 2009); TEIQue-SF Trait Emotional Intelligence Questionnaire Short Form (Petrides, 2009); EI, emotional intelligence; AA, academic achievement.

Table 3 showed that seventeen studies were based on self-report measures of emotional intelligence (EI). 10 studies had examined the relationship between emotional intelligence (EI) and academic achievement (AA) using the Bar-On EQ-i and out of this, five studies (Jaeger & Eagan, 2007; Fallahzadeh, 2011; Fatima, Shah, & Kiani, 2011; Nasir, 2012; Radfer et al., 2012) were significant and had positive relationship with overall emotional intelligence and academic achievement. According to Jaeger & Eagan (2007), emotional intelligence enhanced students' academic performance however, interpersonal skills, adaptability, and stress management relationship were significant with academic achievement. A similar result was demonstrated by Fallahzadeh (2011) where relationships between EI subscales, adaptability and stress management, and academic success were significant. Four studies had confirmed the relationship between some EI components with academic achievement (Babelan & Moenikia, 2010; Carvalho & Colvin, 2015; Durgut, Gerekan, & Pehlivan, 2013; Saklofske et al., 2012). The findings of Babelan and Moenikia (2010) documented that intrapersonal and the general mood had positive relationship with AA, interpersonal had negative relationship with academic achievement while stress management and adaptability did not have any relationship with academic achievement. On the other hand, Carvalho and Colvin (2015) conducted a study on 353 undergraduate students in the USA and results indicated that stress management skills were positive and a stronger predictor of academic achievement and they reported the variance in academic achievement by 61 %. However, Saklofske et al. (2012) reported after conducting a research study in UK university students that adaptability was respectively prominent to dealing with academic achievement. Durgut, Gerekan, and Pehlivan (2013) examined this relationship on 177 students in Turkey and results showed that sub scale of EQ-I problem solving and social responsibility had a positive impact on AA, however, independence, self-actualization and flexibility had a negative effect on the student's academic success. However, Meshkat (2011) found no relationship between emotional intelligence and academic success, the coefficient of correlation was only 0.161.

Similarly, based on self-report measures of EI, six studies have used Petrides (2009) Trait Emotional Intelligence Questionnaire (TEIQue) to assess the emotional intelligence. Four out of six studies showed the strong positive relationship between EI and academic achievement (Laborde, Dossiville, & Scelles, 2010; Perera & DiGiacomo, 2015; Sanchez-Ruiz, Mavroveli, & Poullis, 2012; Yelkikalan et al., 2012). Perera and DiGiacomo (2015) demonstrated that relationship between the emotional intelligence and academic success was significant, however, in an indirect relationship. On the other hand, Gilani, Waheed, Saleem and Shaukat (2015) conducted a research on Pakistani university students and result showed that relationship between emotional intelligence and academic success was negatively insignificant. According to Shipley, Jackson, and Segrest (2010) trait emotional intelligence has no significant association with GPA. Moreover, in self-report measures, only one study of Pope, Roper and Qualter (2012) has used Boyatzis et al. (2000) ECI on 135 undergraduate students in the UK. The result of this study established the positive relation between overall five competencies of EI and average percentage marks (APM). However, individual EI competencies social awareness, conscientiousness, adaptability, empathy, organizational awareness and building bonds relationship with APM were strong.

In the above studies, fourteen studies have used GPA to assess academic success and two study has used CGPA, one has used APM and one study has assessed academic success through assignment grade results (AGR). It seems that GPA is an unprecedented measure of academic success in most studies. In applying data analysis approaches, one study has

applied Statistica 5.1 software, two studies have used second generation multivariate analysis technique, i.e. SEM to analyze the data. All the remaining studies have used SPSS software for data analysis. Hence, it shows that researchers are still using the first generation multivariate analysis techniques.

Studies on Ability-based measures

Emotional intelligence is usually termed as a cognitive ability that include emotional information to be cognitively processed. It means that this model assumes EI as a traditional intelligence which may be measured by applying ability-type tests (Mayer, Caruso, & Salovey, 2000). Following ability-based tradition, different researchers have developed different measures, including the Multifactor Emotional Intelligence Scale or MEIS (Mayer, Caruso, & Salovey, 2000), the Emotional Intelligence test or MSCEIT (Mayer, Salovey, & Caruso 2002), the *Wong and Law* Emotional Intelligence Scale or WLEIS (Wong & Law, 2002), and Self-Rated Emotional Intelligence Scale or SREIS (Brackett et al., 2006). This paper takes into account those studies that had used MSCIT and WLEIS ability-based measures in the last nine years (Table 4).

Table 4: Studies on ability-based measures in alphabetical order

Investigator	Sample	EI scale	Analysis method	Results
Brannick et al. (2013)	377 medical students at the University of South Florida. USA.	MSCEIT and WLEIS GPA	Multiple regression	Study used two ability test to predict relationship between emotional intelligence and academic achievement. Results showed the ability test (MSCEIT) was a better predictor of AA than the ability based EI measure (WLEIS).
Chew, Zain & Hassan (2013)	Sample was 163 medical students. UPM, Malaysia. 21.8 mean of age	MSCEIT CA and FE	MANOVA	EI was significantly and positively correlated with AA ($r = 0.24$). Result specify that medical students who were more emotionally intelligent achieved better grades in both the continuous Assessments (CA) and the final professional examination (FE).
Codier & Odell (2014)	72 Bachelor of Science in Nursing (BSN) students. USA Mean age 24	MSCEIT GPA	ANOVA and correlation	GPA correlated significantly with the total EI score. The correlation between total emotional intelligence score and GPA was statistically significant, $r(70) = .24, p > .05$.
Cheshire, Strickland, & Carter	96 baccalaureate nursing students of a nursing school located	MSCEIT	MANOVA and	The relationship between GPA and individual EI branch scores was not found.

(2015)	in the southeast United States.	GPA	correlation	
MacCann, Fogarty, Zeidner, Roberts (2011)	1, 159 community college students located in Colorado median age of 20 years	MSCEIT GPA	PLS-SEM	EI predicted GPA. However, Emotion Management showed the strongest relationship with GPA. Emotion Perception ($r = .24$), Emotion Facilitation of Thought ($r = .39$), Emotional Understanding ($r = .37$), Emotion Management ($r = .45$).
Mohzan, Hassan & Halil (2013)	1214 bachelor degree students Universiti Teknologi Mara, Malaysia. Average age 21	WLEIS CGPA	Descriptive and referential statistics	There is a positive and weak relationship ($r = 0.084$, $p = 0.193$) between the overall EI and AA of students. Two domains Self – motion Appraisal and Understanding of Emotion are significantly associated with academic achievement.
Olatoye, Akintunde, Yakasai (2010)	235 students from four polytechnics in the Southwest of Nigeria. Average age 23	WLEIS CGPA	Multiple Regression	EI has negative and insignificant relationship with students' academic achievement as measured by CGPA. ($r = -.178$, $p > .05$).
Rode et al. (2007)	378 students of Midwestern state-supported university. USA Average age 20.7 years	MSCEIT GPA	Hierarchical multiple regressions	Result described that EI effects on AA were are more indirect than direct in nature. Students must not only have EI, but as well must be motivated to use it.

Abbreviations: MSCEIT, Mayer–Salovey–Caruso Emotional Intelligence Test (Mayer, Salovey, & Caruso, 2002), WLEIS, Wong and Law Emotional Intelligence Scale (Wong & Law, 2002)

The above table displays eight studies that have used ability-based measures of EI to assess emotional intelligence and six studies out of them have used the MSCEIT. The four studies had found the significantly positive relationship between emotional intelligence and academic achievement (Brannick et al., 2013; Chew, Zain, & Hassan, 2013; Codier & Odell, 2014; MacCann, Fogarty, Zeidner, & Roberts, 2011). However, according to MacCann, Fogarty, Zeidner, and Roberts (2011) emotion management has the strongest relationship with the academic achievement. One study done by Cheshire, Strickland, and Carter (2015) demonstrated no relationship between emotional intelligence and academic achievement. Rode et al. (2007) found an indirect relationship between EI and AA. The result of this study suggested that students not only have EI but also the motivation to use it. Similarly, based on ability-based measures, two studies have used Wong and Low (WLEIS) scale to assess the EI. One study conducted by Olatoye, Akintunde, and Yakasai (2010) found an insignificant relationship between EI and AA. In a second study, Mohzan, Hassan, and Halil (2013) studied the relationship between emotional intelligence and academic achievement on 1214 students at the Malaysian university and the result of this study indicates that two domains of (WLEIS) Self-Emotion Appraisal and Understanding of Emotion are significantly related with academic achievement of the students. Moreover, in the above studies, five studies have used GPA to assess academic success and two have used CGPA and one study has measured academic achievement through continuous assessment (CA) and final examination (FE) results. In data analysis techniques, only one study has used second generation multivariate analysis technique SEM for data analysis. Remaining seven studies have used SPSS software to analyze the data.

Academic achievement measures

Of the 26 studies reviewed, the most commonly reported outcome variables or academic achievement measure was GPA (n= 19) CGPA, (n= 4). The remaining 3 studies have used different measures of academic achievement such as CA (n=1), APM (n=1) and AGR (n=1).

Discussion

Overall, this review have found 13 studies that had a significant positive relationship between EI and AA and having a high emotional intelligence gives an added advantage to the individuals, may it be in educational pursue or career development (Jaeger & Eagan Jr, 2007; Brannick et al., 2013; Chew, Zain & Hassan, 2013; Codier & Odell, 2014; Fallahzadeh, 2011; Fatima, Shah, & Kiani, 2011; Laborde, Dossiville, & Scelles, 2010; MacCann, Fogarty, Zeidner, & Roberts, 2011; Nasir, 2012; Oyewunmi, Osibanjo, & Adeniji, 2016; Sanchez-Ruiz, Mavroveli, & Poullis, 2012; Pope, Roper & Qualter, 2012; Yelkikalan et al., 2012). Two studies by Perera and DiGiacomo, (2015) and Rode et al., (2007) demonstrated that there were significant indirect relationship between emotional intelligence and academic success. Similarly, the results of 6 studies showed that different components of EI have significant relationship with the academic achievement (Babelan & Moenikia, 2010; Carvalho & Colvin, 2015; Durgut, Gerekan, & Pehlivan, 2013; Mohzan, Hassan & Halil, 2013; Radfer et al., 2012; Saklofske et al., 2012). However, there are three studies that reveals no impact of emotional intelligence measures on academic achievement (Cheshire, Strickland, & Carter, 2015; Meshkat, 2011; Shipley, Jackson,

& Segrest, 2010). Moreover, two studies Olatoye, Akintunde, and Yakasai (2010) and Gilani, Waheed, Saleem and Shaukat (2015) have found a negative insignificant relationship between emotional intelligence and academic achievement. The current systematic-analysis designates that overall there is a significant relationship between emotional intelligence and academic achievement among emerging adults. Therefore, it has been soundly established that emotional intelligence is one of the important determinants of academic achievement among emerging adults and this may make them into useful employees once they embark into the working world. As such, the literature view indicates that most studies used the trait-based measures and 8 studies have used ability-based measures and in these studies only two studies by Cheshire, Strickland, and Carter (2015) and Olatoye, Akintunde, and Yakasai (2010) did not find any significant relationship between emotional intelligence and academic achievement. Remaining studies demonstrate a strong relation between EI and AA. Therefore, in future, more studies should be conducted by using ability based measures to confirm this relationship. On the other hand, Trait-based EI measures by Goleman and Boyatzis et al. (2000) (ECI) have not been used sufficiently in the literature to draw a strong conclusion, only one study by Pope, Roper and Qualter (2012) used it and found a positive relationship.

Conclusions

A systematic review of 26 studies based on the responses of 8885 participants, conducted during the time period 2007 to January 2016 and retrieved from five database, revealed the fact that higher EI is significantly related to better academic success among students. These results are consistent across cultural contexts, including nine studies in the USA, three in Iran, three in Pakistan, two in turkey, two in the UK, two in Malaysia, two in Nigeria, and one in each of Australia, Cyprus, and France.

Limitations and recommendations

The aim of this review paper is to organize the studies based on trait EI and ability EI and provide an empirical update on the research examining the relationship between emotional intelligence and academic achievement in emerging adults. Based on this review, certain important limitations and directions for future research are discussed. Firstly, research articles comprised in this present systematic-analytic review are selective. Only empirical quantitative research papers published from 2007 to 2016 which specifically concentrate on emotional intelligence and academic achievement were collected and reviewed. Second, the present study is also restricted by the emphasis on five databases and does not include dissertation and unpublished work. Future researchers can categorise other possible data base such as the review of dissertation and further unpublished data bases to increase the number of studies and eliminate the publication bias. Third, this study reviewed only the empirical studies that employed the sample size of students between the ages of 18 to 25 years only (emerging adults) and does not consider adolescent and adulthood. Therefore, studies on adolescents and adults that assess EI using ability and trait measures are too obligatory. Fourth, this review paper only considers the five measures of emotional intelligence, three trait-based and two ability-based and ignore other EI measures. Indeed, future studies must try to endorse and

explore this observed relationship between EI and academic achievement by considering other measures of emotional intelligence. Future studies should explore this observed relationship between EI and academic achievement by considering Goleman's and Boyatzis et al. (2000) (ECI) measures of emotional intelligence. The conclusion that materializes from this review is that more systematic empirical research on emotional intelligence and academic achievement is necessary to address these limitations.

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