

Relationships between emotional intelligence and psychological factors in physical education

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ABSTRACT

Introduction. One of the goals of physical education curricula in primary and secondary schools in Greece is the development of students' social and emotional skills. These skills, traditionally regarded as 'non cognitive skills', are included in Emotional Intelligence theory and are strongly related with individual's success and wellbeing.

Aim of Study. The purpose of the present study was to investigate the relationships between students' emotional intelligence and other psychological factors in the physical education context.

Material and Methods. A questionnaire survey was carried out among eight-hundred junior and senior high school students from the city of Thessaloniki, Greece.

Results. The results of Pearson correlation analysis revealed that students' high emotional intelligence had positive and significant relations with students' experience of positive feelings in physical education classes and with their adoption of an integrative conflict resolution strategy. On the other hand, students' emotional intelligence showed negative relationships with their negative feelings in physical education, and their adoption of an aggressive conflict resolution strategy.

Conclusions. Students who are adept in social and emotional competencies and skills are able to resolve their contradictions in positive and constructive ways in order to maintain positive feelings in PE classes and to participate in various school activities by regulating their learning process. Therefore, it is worth investigating the relationship between students' social and emotional competencies and skills and other psychological parameters in PE and in other school settings.

KEY WORDS

physical education, emotional intelligence, self-esteem, emotional regulation, conflict resolution styles.

Introduction

The propagation of pro-social behaviors, development of moral standards, cultivation of values such as fairness and integrity, prevention of delinquency, reduction of violence, enhancement of self-esteem, appreciation and tolerance for others, and development of leadership skills are some of the benefits of children's involvement in physical activity and physical education [1]. These are also emotional and social goals included in physical education curricula in primary and secondary schools in Greece [2]. However, emotional and social development is not simply the result of involvement in physical education and sport, but rather the outcome of participation in sophisticated physical activity programs that were purposely designed to develop children's emotional and social competences [1, 3].

A series of studies [4, 5, 6] revealed strong relationships between emotional competencies, emotional regulation and general mood as well as the neural circuitry thought to govern these factors. In school settings emotional regulation and general mood are regarded as highly significant factors for school life and academic learning [6].

One critical parameter of school life and physical education, in particular, is students' behavior and the way they cope with conflicts. Moreover, effective conflict resolution strategy is associated with communicative skills, management of emotions and stressful situations as well as general confrontation skills [7].

Emotional intelligence

Emotional and social competencies are currently viewed within the domain of "emotional intelligence" (EI) as different from cognitive intelligence and personality traits. In recent

years, scientists have become particularly interested in emotional intelligence – a concept first defined by Salovey and Mayer (1990) and later popularized by Goleman (1995). Emotional intelligence is a construct associated with the recognition, regulation, understanding, expression and use of emotions by oneself and others [8, 9, 10, 11]. Salovey and Mayer (1990) initially described emotional intelligence as part of social intelligence, based on Thorndike's (1920) definition of the construct, which implies the ability to understand one's and others' emotions and to use this information to guide one's thoughts, decisions and actions [12].

The emotional and social competencies and skills referred to as "emotional intelligence" [10, 11, 13, 14, 15, 16, 17], seemingly play an important role in thinking, learning and various other mental activities that, in the past, were regarded as being cognitive [18]. Neuroscientists, moreover, argue that emotions and feelings have an important impact on attention, learning, memory and other mental activities. As such, the relationship between emotions and learning could be examined both in the educational setting as well as in various other settings that involve human activity and interaction [19].

The Bar-On model of emotional intelligence

One of the leading models of emotional intelligence is the Bar-On model [20]. Bar-On refers to his conceptual model as "emotional-social intelligence" (ESI), because it is composed of a number of intrapersonal and interpersonal competencies and skills [13, 15]. Many of the factorial components of this model are similar to those referred to by Gardner as the intrapersonal and interpersonal components of "personal intelligences" [21]. According to the Bar-On model, emotional-social intelligence is an array of interrelated emotional and social competencies, skills and facilitators that determine how effectively one understands and expresses oneself, understands others and relates with them, and copes with daily demands [11, 13, 15].

The Bar-On model of emotional-social intelligence is operationalized by the Bar-On Emotional Quotient Inventory [11], which has been translated into more than 30 languages and applied worldwide in schools, workplaces and in healthcare. The Bar-On Emotional Quotient Inventory: Youth Version [22] is a self-report instrument designed to measure emotional-social intelligence in young people aged 7 to 18 years. It is based on the Bar-On model, which also formed the theoretical basis of the EQ-i.

The model consists of five composite scales: Intrapersonal Capacity (individuals' ability to understand and communicate their own feelings and needs), Interpersonal Skills (ability to understand and appreciate feelings of others), Stress Management (ability to stay calm and work well under pressure), Adaptability (effective dealing with everyday problems), and General Mood (optimism and positive outlook on life).

Emotional intelligence and emotional regulation

Physical education is perhaps the most social of school subjects [23], and physical education lessons involve many varied and intense emotions. Children's character and personality can be tested in competitive games, and the posi-

tive management of feelings may be governed by a particular ability [24]. For this reason, the development of skills directly or indirectly associated with self-regulation, such as team spirit, collaboration, self-control, patience, adherence to goals, fair-play, acceptance of defeat and respect of one's opponents, is one of the main goals of the Greek physical education curriculum [2].

It is widely accepted that there is a strong link between effective emotional regulation and well-developed emotional intelligence skills [25]. According to Tugade and Fredrickson (2001), emotional regulation is thought to be closely associated with emotion management and emotional adaptation. They argue that people who experience positive emotions are able to successfully regulate their negative emotions and this, in turn, produces beneficial consequences for their psychological and physiological well-being. Additionally, they suggest that individual differences might exist in the use of positive emotions for being more effective and more resilient in stressful situations [24, 26].

Based on the above discussion, it is indeed possible that individual differences exist in the use of regulation strategies [27]. For example, certain individuals have a greater tendency to draw on positive emotions in times of stress and are able to understand and use positive emotions to their advantage more than others [28]. As such, emotional regulation would appear to be an important factor in differentiating between those individuals who are able to successfully cope with stressful situations and those who cannot effectively deal with such situations [24].

In support of this notion, a study in China [29] showed that college students' scores on the Emotional Intelligence Scale [30] were positively correlated with positive emotions, while they were negatively correlated with negative emotions measured with the Positive and Negative Affect Schedule [31]. Recent research findings appear to support the notion that individuals with higher levels of emotional intelligence exhibit a more enhanced emotional regulation ability [32].

Emotional intelligence and conflict resolution styles

Conflict resolution strategies are thought to be associated with emotional intelligence [33]. In support of this notion, individuals with enhanced emotional and social skills are characterized by their ability to effectively control emotions, empathize, communicate clearly, solve problems and successfully resolve conflicts [10]. Emotionally and socially intelligent students are aware of their own and others' feelings, and they typically strive to attain a safe and comfortable classroom learning environment [34].

Conflict resolution is defined as a process of confronting problems, which is based on collaboration and helps individuals and groups define their objectives and find solutions that satisfy these objectives [7]. Interpersonal conflicts are characterized by opposition and disagreement and are described as either *constructive* or *destructive*. Destructive conflicts are escalated beyond the immediate issue and involve coercion and threats, while constructive conflicts are focused on immediate problems and are associated with conflict resolution strategies like negotiation and compromise [35].

Rahim's model of conflict resolution [36], describes five principal styles of handling interpersonal conflicts: *integrating*, *compromising*, *dominating*, *obliging* and *avoiding*. The integrating style attempts to merge both self-interest goals and other-interest goals via open channels of conflict negotiation. The compromising style involves a give-and-take concession approach in order to reach an equitable agreement concerning the conflict. The dominating style is characterized by an individual's need to control or dominate the conflict situation. The obliging style is characterized by accommodating the need of the other person at the expense of one's own interests. Finally, the avoiding style involves evading the conflict, the conflicting party or the conflict situation altogether.

Ting-Toomey [37], whose model is compatible with Rahim's model, described three new conflict resolution styles while examining cross-cultural differences of conflict styles: the *neglect* style, which is characterized by anger and aggressiveness; the *third party help* style, which is arbitration by another person; and the *emotional expression* style, which involves conflict responses according to situational emotions.

Contemporary social cognitive models predict that conflicts, constructive or destructive, arouse emotions because they threaten individuals' or groups' goals [38, 39]. While destructive conflicts involve emotional arousal that is often beyond one's control, a constructive conflict resolution involves the management of emotions and the use of a negotiating process that lead to a mutually acceptable solution [40]. Based on these notions, emotional intelligence is expected to be related to individual conflict resolution styles, as communication ethos implies both self regulation and interpersonal skills. Very few studies have shown that emotional intelligence is related to problem solving strategies in conflict situations [33]. While individuals with high scores in emotional intelligence prefer to seek collaborative solutions when confronted with conflicts [41], the integrating style is the most preferable conflict resolution tactic [42].

Aim of Study

The present study aimed to compare students' emotional intelligence (social-emotional skills) with psychological factors such as experienced emotions and conflict resolution styles in physical education context.

Material and Methods

The study was conducted among junior and senior high school students in a large metropolitan area in Greece, with the permission of the Greek Ministry of Education and the agreement of school authorities. The students provided their written consent to participate in the study. The questionnaires were completed anonymously in classroom in the presence of a researcher who quietly provided instructions to individuals when necessary.

Participants

Eight hundred students participated in this study (429 girls, 363 boys and 8 who did not specify their gender).

The respondents were attending the 7th and 8th grades of junior high school (491 students, mean age 13.05, SD = 0.98) and the 10th and 11th grades of senior high school (309 students, mean age of 15.7, SD = 0.74).

Instrumentation

A Greek language version of the EQ-i:YV questionnaire [43] was used to assess the students' emotional-social competencies and skills. It included 33 items and assessed 5 factors: Intrapersonal (e.g., "It is easy for me to tell people what I feel"); Interpersonal (e.g., "I feel bad when other people have their feelings hurt"); Stress Management (e.g., "I can stay calm when I am upset"); Adaptation (e.g., "I can come up with many ways of answering a hard question when I want to") and General Mood (e.g., "I know things will be okay"). Following the authors' suggestions [13], an overall composite scale "Total EQ" was created by summing the mean scores of the emotional intelligence scales (Intrapersonal, Interpersonal, Self Management and Adaptation).

After the introductory statement "In my life generally ..." students responded to the items of the EQ-i:YV on a 4-point Likert scale (4 = very often true of me, 3 = often true of me, 2 = seldom true of me, 1 = very seldom true of me). The results of the factor analysis revealed that the 5-factor 33-item structure had good internal validity and consistency. It explained 54.77% of total variance, with the factor loadings ranging from 0.45 to 0.88, and alpha coefficients from 0.79 to 0.87.

The Positive and Negative Affect Schedule [31] was used to assess students' feelings in the physical education setting. It captures ten positive (e.g., "Interested" and "Excited") and ten negative (e.g., "Sad" and "Upset") emotions. Following the introductory statement "Generally, in physical education class, I feel ...," students indicated their emotions on a 5-point Likert scale (5 = Absolutely agree, 4 = Agree, 3 = No opinion, 2 = Disagree, 1 = Absolutely disagree). The coefficient alphas for Positive Emotions and Negative Emotions were 0.84 and 0.82, respectively.

The students' conflict resolution strategies were measured with the use of Greek version [44] of the Conflict Style Dimensions Scale [45]. Conflict was defined as "intense disagreement between two parties which involves incompatible goals, needs and viewpoints". Students were instructed that when responding to the conflict section they should think of how they typically handle face-to-face conflicts with acquaintances, classmates, and so forth. The CSD consisted of eight scales: Integration, Compromise, Domination, Obliging, Avoidance, Neglect, Third Party Help, and Emotional Expression. For the purpose of this study, only two scales were used: Integration comprising 6 items (e.g., "I would tell another person that there were problems and suggest that we work them out"), and Neglect consisting of 5 items (e.g., "I would say and do things out of anger to make the other person feel bad"). These two scales represent the more constructive and the more destructive conflict resolution styles, respectively [37, 45]. Items were answered on a 5-point Likert scale (1 = Absolutely disagree, 2 = Disagree, 3 = No opinion, 4 = Agree, 5 = Absolutely agree). The coefficient alphas for Integration and Neglect were 0.77 and 0.81, respectively.

Statistical analysis

Firstly, exploratory factor analyses of principal components with varimax rotation, and reliability analyses (Cronbach α), were used for examining the questionnaires' construct validity and internal consistency. Then Pearson's product moment correlations (bivariate correlation) were used to examine the relationships among the students' emotional-social intelligence, positive and negative emotions, as well as their conflict resolution strategies.

Results

Internal consistency reliability coefficients (Cronbach α), for the used instruments ranged from 0.87 to 0.79. These findings demonstrated that the degree of internal consistency of the instruments was at an acceptable level.

The results in Table I reveal that positive emotions were positively and significantly correlated with Total EQ, Adaptation and General Mood. The correlation of positive emotions with Stress Management, Intrapersonal, and Interpersonal were statistically significant but very low. While negative emotions were negatively correlated with Stress Management, they revealed a low negative correlation with Total EQ and General Mood.

The two conflict strategies were significantly correlated with the EQ-i:YV scales including General Mood. More precisely, integration was positively correlated with the EQ-i:YV scales while neglect was negatively correlated with all the scales of the EQ-i:YV except for Intrapersonal.

Discussion

This study examined the correlations among junior and senior high school students' emotional intelligence (as defined by Bar-On, 1997, 2000, 2004, 2006), with some critical psychological factors in physical education (PE) classes. Psychological factors such as emotional regulation and preferred conflict resolution strategies are regarded as very important factors for students' academic achievement as well as for their future success and wellbeing [7, 23, 38].

Although the correlations between the EQ-i:YV's scales and students' emotions in the present sample were low, they were indeed in the acceptable range [29]. Since managing emotions is an important aspect of emotional intelligence, it is expected that students who possess enhanced

emotional and social skills exercise more emotional control, experience more positive emotions and are able to diminish the occurrence of negative emotions [32]. In other words, emotional intelligence may be a key factor discriminating between students who are able to successfully cope with stressful situations and those who face setbacks from similar experiences [46].

Excitement, intense emotions and frequent emotional swings are common in physical education classes and in sports in general; therefore, students' emotional regulation appears to be an important factor that is involved in such activities. Students with low stress management skills have difficulties in managing their negative feelings in physical education; and this, in turn, may contribute to low self-esteem, anxiety and embarrassment [47, 48]. On the other hand, students with high adaptation skills are able to manage the frequent emotional swings that are often observed in PE classes and in sports in general in view of the fact that they are well equipped in dealing with problems in positive ways. Additionally, the regulation of emotions in a positive way, as described by Tugate and Fredrickson (2001), is a kind of emotional and social skill that involves perception and expression of emotions, empathy for others, social responsibility, self-control, and adaptation to environmental changes. Positive emotions and satisfaction in PE, in turn, help students develop positive attitudes toward school, PE lessons and exercise, which are the goals of contemporary PE curricula in Greece [2].

Nearly all conflicts involve underlying emotional issues. The stronger the feelings are, the more difficult the resolution is. To resolve conflicts, it is then absolutely necessary to address the feelings of all parties [49]. Successful conflict resolution depends on our ability to manage stress and control behavior when communicating with others, paying attention to the expressed feelings, and being aware and respectful of differences [50].

The present findings seem to confirm the hypothesis that augmented emotional and social skills, especially stress management and interpersonal skills, are closely associated with effective conflict resolutions [7]. The management of emotions contributes to resolution of conflicts in a constructive manner [40], and individuals with higher levels of emotional intelligence are effective in overcoming conflicts through constructive discussion and integration of their interests with the interest of others [41]. On the other hand,

Table I. Pearson Product Moment correlations between the EQ-i:YV scales and emotions, metacognitive strategies in physical education and conflict resolution strategies

Emotional Intelligence Scales	Emotions		Conflict Strategies	
	Positive	Negative	Integration	Neglect
Total EQ	0.22**	-0.15**	0.42**	-0.39**
Adaptation	0.29**	-0.04	0.17**	-0.16**
Stress Management	0.08*	-0.35**	0.29**	-0.48**
Intrapersonal	0.11**	0.06	0.19**	-0.02
Interpersonal	0.11**	-0.13**	0.37**	-0.35**
General Mood	0.27**	-0.15**	0.14**	-0.13**

Significance level: ** $p < 0.01$, * $p < 0.05$.

individuals with lower levels of emotional intelligence, particularly those who are unable to manage stress adequately, are much more likely to inflame the situation by exhibiting offensive behavior.

Physical education offers an environment of interactions that involves skills acquisition, challenges and emotional exchanges. Implicitly, it might be constructive or destructive for students' personal development [23]. A great emphasis, for example, in winning and competition could be discouraging for many students, especially for those with low physical abilities. Traditional teacher-centered PE programs may also cause negative emotions in students, including low self-perception, high stress and embarrassment [48].

Social and emotional skills can be developed in PE via specially designed programs and teaching methods [3]. Physical educators should be aware of students' developmental needs and the practices for developing their social skills. A classroom climate with a sense of 'community' and a culture of care among students is the proper learning environment for creating students' overall social-emotional intelligence. An emphasis on respect, team spirit and considerate dealing with winning and losing, are fundamentals for teaching these important life skills [19].

Conclusions

Students who are adept in social and emotional competencies and skills are able to resolve their contradictions in positive and constructive ways, to maintain positive feelings in PE classes and to participate in various school activities by regulating their learning process. These competences, referred to as "emotional intelligence", are learnable, interact with other aspects of school life and are regarded as essential equipment for students' future success and wellbeing [10, 13]. Physical education classes, where intense emotional situations take place and individuals' characters are tested, are the proper places for the development of students' social and emotional skills [1, 23].

Therefore, it is worth investigating the relationship between students' social and emotional competencies and skills and other psychological parameters in PE and in other school settings. Future research in these and other areas is of great importance and interest, as research indicates there is a need for studying the impact of these competencies on learning and, especially, on learners' wellbeing and life success.

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