

Assessment of a program to identify expression of emotions by primary school students

Avaliação de programa sobre identificação de emoções por alunos do ensino básico
Evaluación del programa sobre identificación de emociones por alumnos de educación primaria

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How to cite:

Campos SM, Costa MG, Ferreira M, Ribeiro OP, Costa S, Duarte J, et al. Assessment of a program to identify expression of emotions by primary school students. Acta Paul Enferm. 2020;33:e-APE20190049

DOI

<http://dx.doi.org/10.37689/acta-ape/2020A00049>



Keywords

Emotions; Child; Adolescent; Schools; Health education

Descritores

Emoções; Criança; Adolescente; Instituições acadêmicas; Educação em saúde

Descriptores

Emociones; Niño; Adolescente; Instituciones académicas; Educación en Salud

Submitted

March 8, 2019

Accepted

July 22, 2019

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Abstract

Objective: to assess the efficacy of a socioemotional education program on recognizing and distinguishing emotions among 2nd and 3rd cycle primary education students and analyze the influence of sociodemographic variables.

Methods: This was a before-after intervention study including a sample of 101 students (58.4% girls) divided into two groups. The first groups age ranged from 9 to 11 years-old (mean: 10.34 years; SD = 0.59) and in the second group from 12 to 15 years-old (mean: 13.37; SD = 0.99). We applied the Emotions and Feelings Identification Awareness Inventory (IIES- Moreira, P., Oliveira, J.T., Crusellas, L., Lima, A., 2012) before and after socioemotional education program based on Costa's (2012) program "6 basic emotions and facial expression by the little wisps of wisdom".

Results: Students were aged between 9 and 15 years, and most of them (27.7%) were attending the 8th school year. The ability of recognizing and distinguishing emotions and feelings varied significantly by sex and age. The comparison of means in the global sample was not statistically significance in the identification and differentiation of feelings before and after the intervention. Considering students by age group, the Student t-test for mean differences showed significant differences in the ability of identifying positive emotions ($t = -2.813$; $p = 0.007$) and a decrease in identifying neutral emotions ($t = 2,258$; $p = 0.029$) in the 9-11 years-old group.

Conclusion: Findings indicate that competences in identifying and differentiating emotions change after exposition to educational strategies, especially among younger individuals. These strategies have also an effect on emotional self-regulation and on daily emotional experiences with others, mainly when they are intentional and systematically introduced into a school environment.

Resumo

Objetivo: Avaliar a eficácia de um programa de educação sócio emocional na diferenciação e identificação de emoções em alunos do 2º e 3º ciclos do Ensino Básico e analisar a influência das variáveis sociodemográficas.

Métodos: Estudo de intervenção com avaliação antes e depois, realizado numa amostra de 101 alunos, 58,4% raparigas, divididos nos grupos etários de 9-11 (média= 10,34 anos; Dp= 0,59) e 12-15 anos (Média= 13,37; Dp= 0,99). Foi aplicado o Inventário de Identificação de Emoções e Sentimentos (IIES- Moreira, P., Oliveira, J.T., Crusellas, L., Lima, A., 2012) antes e após programa de educação socio emocional, baseado no Programa "expressões faciais de 6 emoções básicas dos Mochinhos da Sabedoria" de Costa (2012).

Resultados: Os alunos tinham entre 9 e 15 anos e a maioria (27,7%) frequentava o 8º ano de escolaridade. A capacidade de identificar e diferenciar emoções e sentimentos variou significativamente em função do

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Conflicts of interest: none to report.

género e idade. A comparação de médias na amostra global não revelou significância estatística na diferenciação e identificação de emoções antes e após a intervenção. Analisando por grupos etários o Test-t para diferença de médias indicou diferenças significativas na capacidade de identificação emocional positiva ($t = -2,813$; $p = 0,007$) e diminuição na identificação emocional neutra ($t = 2,258$; $p = 0,029$) no grupo dos 9-11 anos.

Conclusão: Os resultados encontrados indicam que as competências de diferenciação e identificação de emoções se alteram após estratégias educacionais, sobretudo em idades precoces. Isto terá efeito na auto-regulação emocional e nas experiências emocionais quotidianas com os outros, sobretudo se incluídas de forma intencional e sistemática em ambiente escolar.

Resumen

Objetivo: Evaluar la eficacia de un programa de educación socioemocional para la diferenciación e identificación de emociones en alumnos de 5° a 9° año de primaria y analizar la influencia de las variables sociodemográficas.

Métodos: Estudio experimental con evaluación antes y después, realizado con una muestra de 101 alumnos, 58,4% mujeres, divididos en grupos de edad de 9 a 11 (promedio= 10,34 años; $Dp = 0,59$) y 12 a 15 años (promedio= 13,37; $Dp = 0,99$). Se aplicó el Inventario de Identificación de Emociones y Sentimientos (IIES- Moreira, P., Oliveira, J.T., Crusellas, L., Lima, A., 2012) antes y después del programa de educación socioemocional, basado en el programa "Expresiones faciales de seis emociones básicas" de Mocinhos da Sabedoria de Costa (2012).

Resultados: Los alumnos tenían entre 9 y 15 años y la mayoría (27,7%) estaba en 8° año de escuela. La capacidad de identificar y diferenciar emociones y sentimientos varió significativamente en función del género y la edad. La comparación de promedios de la muestra global no reveló significación estadística en la diferenciación e identificación de emociones antes y después de la intervención. Al analizar por grupos de edad, el test-T para diferencias de promedios indicó diferencias significativas en la capacidad de identificación emocional positiva ($t = -2,813$; $p = 0,007$) y reducción en la identificación emocional neutra ($t = 2,258$; $p = 0,029$) en el grupo de 9 a 11 años.

Conclusión: Los resultados encontrados indican que las competencias de diferenciación e identificación de emociones se alteran luego de aplicar estrategias educativas, sobre todo en edades precoces. Esto tendrá un efecto en la autorregulación emocional y en las experiencias emocionales cotidianas con los otros, sobre todo si se incluyen de forma intencional y sistemática en el ambiente escolar.

Introduction

In a narrow sense, emotions such as joy, sorrow, fear, pride, shame, and sympathy are a natural way to evaluate our surroundings and react in an adaptive way. We can find the balance of our lives on emotions. Therefore, emotions should be considered as valuable and give them a meaning in order to establish more harmonious relationships to guarantee balance of the emotional system given the protective influence that emotions have on cognitive, perceptible and behavioral process.⁽¹⁾

There are a number of emotional, cognitive and behavioral skills that are developed during early stages of life, establishing stable attachment relationships with parents/caregivers as basis for the baby's socioemotional functioning that help to promote positive relationship in the present and for the future.⁽²⁾

The ability of regulating emotions, control impulses, understand messages, i.e. the progressive development of emotional competence plays an important role in children's development. Studies on emotional intelligence, i.e., the ability of perceiving, assessing and expressing emotions⁽³⁾ have showed that individuals with higher degree of this kind of intelligence present better physical and

psychological health, better interpersonal relationships, more positive emotional states and, therefore, a more positive attitude towards school, teachers and a greater well-being. For this reason, the socio-emotional learning as a process of effective acquisition and application of knowledge, attitudes and necessary competences for recognizing and managing emotions should be promoted as early as possible. Ideally, such promotion should be conducted during pre-primary education for developing of basic competences such as emotional self-awareness, social consciousness (empathy and respect to others), self-control and social competences (communication and cooperation). These actions will have a positive impact on attention/concentration and schooling performance.⁽⁴⁾

In Portugal, the National School Health Program (NSHP) challenges schools to implement activities that promote development of socioemotional competences, given that schools help students to become more resilient, allow them to recognize their own emotions and find the most suitable way to cope with them and manage decision-making process in a more responsible way, whether related with their health status or with their life. The Portuguese School Health promotes a partnership program between community health and education

systems that encourages health promotion and disease prevention within school context.

These activities conducted by Community Care Units teams are intended for the needs identified in each school cluster. With the improvement of the health status of Portuguese children population, the school health program is focused on promotion of socioemotional competences among children and adolescents, and improving quality of life. To improve health and quality of life is more than enable people or communities to act, this implies to recognize their competences and strengths, and facilitate their choices. These are great challenges of "contemporaneity"⁽⁵⁾

This study assesses the effectiveness of a socioemotional education program to determine emotion recognition in primary school students and analyzes the influence of sociodemographic variables.

Methods

This was a before-after intervention study developed within the scope of MaiSaúdeMental Project with reference to CENTRO-01-0145-FEDER-023293 at School of Health of Instituto Politécnico de Viseu, Portugal. The study was carried out with a convenience sample including 101 children/adolescents. Of them, 58.4% were girls aged from 9 to 15 years-old (mean = 11.96; SD = 1.73) at 2nd and 3rd cycles of primary school at a public school grouping partnered in MaiSaúdeMental project. The students were making a visit to School of Health of Viseu laboratories for career counseling and they were invited to participate in an interventional study conducted by a psychologist from the team. To address different competences of development resulting from the variability of the participants' age for data analysis, we considered two age groups. One group including those aged 9-11 and the other group individuals aged 12-15 years-old. We adopted a questionnaire of sociodemographic characterization and the Emotions and Feelings Identification

Awareness Inventory (IIES)⁽⁶⁾. This self-report inventory assesses children/adolescents' ability of identifying and distinguishing emotions from daily

situations. The inventory is composed by 15 items of dichotomous responses and open responses format of the identified emotions. Responses were divided into 4 groups (1 = absence of emotion/feeling; 2 = incongruent; 3 = congruent; and 4 = consensual) and distributed into 3 scales: a) Negative Valence - items associated to experience of negative feelings, b) Positive Valence - items associated to experience of positive emotions.

The sum of items of each scale allows the negative and positive emotional differentiation index. The sum of these two scales allows obtaining the total of the emotional differentiation scale c) Neutral Valence - items related to situations that are not associated to any emotional experience. The sum of the 3 scales allows assessing the children's emotional identification index. The socioemotional education program of the little wisps of wisdom based on Meyer and Salovey's emotional intelligence model⁽⁷⁾ that seeks the development of emotional perception (EP) competences developed by the game "6 basic emotions and facial expression".

The goal is to recognize accurately different emotions in themselves and in the others, as the intervention aimed at stimulating the ability of identifying other individuals' emotions based on facial expressions. According to the author, adequate readings of other's expressions and body language are fundamental to human interactions.⁽⁸⁾

After pre-test application, the students were enrolled in the intervention program which consisted of showing them the face of "Mary" based on the corresponding emotion: fear, surprise, anger, sadness, aversion and joy. Subsequently, the children and adolescents were invited to experience the facial expression of each emotion, during this activity they analyzed differences in the inferior and superior part of their faces. The students were then instructed to throw a dice, so that an image representing an emotion would be randomly selected for them to name it as well as to tell about situations at the school, with their peers or family members in which such emotion was experienced. Students also received cards representing situations in three previously mentioned contexts in which children and adolescents had to identify emotions and the

corresponding facial expression. After the intervention, the post-test was applied to determine whether there was an improvement in emotional identification and differentiation.

This study was approved by the Data Protection Commission, by the General Board of Education as well as by the Grouping of Schools Board Council. An informed consent was obtained from all parents and legal responsible. The Statistical Package for the Social Sciences[®] (SPSS version 24.0) software was used for parametric and non-parametric tests given the size of our sample. For tests analyses we considered a 95% confidence interval (CI) and p value <0.05.

Results

Data analysis was performed considering two age groups: children aged 9 -11 years-old and adolescents aged 12 - 15 years. Children aged 9-11 years, 47 (53.2%) were girls with mean age of 10.34 years (SD = 0.59), with values that are overlapped between sexes, and 48.90% who were attending 5th year of schooling. In group aged 12-15 years, 54 (63%) were girls with mean age of 13.37 years (SD = 0.99), slightly higher among girls (13.64; SD = 0.98; 12.90; SD = 0.85, respectively) and 51.9% of them were attending 8th years, followed by 20.4% attending 7th years.

The analysis of responses obtained concerning sex in the global sample and given the sample size, the Mann-Whitney U test indicated a higher mean ordination for girls before or after the socioemotional education program. The analysis of groups, we observed the same tendency among girls, especially in 9-11 years old group and before the program. We observed significant differences in emotion identification ability (MWU = 157.000; p = 0.011) and after the program for the neutral emotion differentiation (MWU = 180.5000; p = 0.041) and emotion identification (MWU = 171.000; p = 0.024) (Table 1).

In adolescents' group, the mean ordinations are often higher than in younger children's. Similarly

Table 1. Mann-Whitney U test before and after intervention program in the children's group considering participants' sex.

	Boys		Girls		Test	
	9-11		MWU	p-value		
Before	Positive Emotion Differentiation	23.36	24.56	261.00	0.705	
	Negative Emotion Differentiation	22.25	25.54	236.50	0.365	
	Neutral Emotion Differentiation	20.14	27.40	227.00	0.279	
	Total Emotion Differentiation	21.82	25.92	190.00	0.065	
	Emotion Identification Index	18.64	28.72	157.00	0.011	
After	Positive Emotion Differentiation	21.43	26.26	218.00	0.161	
	Negative Emotion Differentiation	21.66	26.06	223.50	0.221	
	Neutral Emotion Differentiation	19.70	27.78	218.00	0.206	
	Total Emotion Differentiation	21.41	26.28	180.50	0.041	
	Emotion Identification Index	19.27	28.16	171.00	0.024	

the same tendency among girls were observed concerning statistical differences to differentiate positive emotions and ability of identifying emotions whether before (MWU = 225.500; p = 0.032 and MWU = 189.500; p = 0.007) or after the program (MWU = 222.000; p = 0.024 and MWU = 191.500; p = 0.008) (Table 2).

Chart 2. Mann-Whitney U test before and after intervention program in the adolescents' group considering participants' sex.

	Boys		Girls		Test	
	12-15		MWU	p-value		
Before	Positive Emotion Differentiation	21.78	30.87	225.00	0.032	
	Negative Emotion Differentiation	25.33	28.78	296.50	0.406	
	Neutral Emotion Differentiation	22.60	30.49	238.50	0.064	
	Total Emotion Differentiation	22.43	30.38	242.00	0.076	
	Emotional Identification Index	19.98	31.93	189.50	0.007	
After	Positive Emotion Differentiation	21.60	30.97	222.00	0.024	
	Negative Emotion Differentiation	20.30	29.80	223.50	0.221	
	Neutral Emotion Differentiation	25.03	28.96	290.50	0.363	
	Total Emotion Differentiation	26.50	30.23	225.00	0.067	
	Emotion Identification Index	20.08	31.87	191.50	0.008	

For analysis of data considering participants' age, a non-parametric Kruskal-Wallis test was carried out given the sampling size. The test showed higher mean ordinations among 14 years-old students whether before or after the assessment of the program. The analysis of each group and younger children, before or after the emotional education program, showed that 11 years-old students had higher mean ordinations concerning positive and negative emotional differentiation and in the total differentiation whereas 10 years-old children showed higher rates in neutral emotions and emotional identification but with no statistical significance (p>0.05). Emotional differentiation and identification among adolescents were higher in those aged 14 years-old whether before or after the

Table 3. T-test for difference of averages before and after intervention program considering participants' age.

Age groups Items	Before	After	t-test		Before	After	t-test	
	9-11		t	p-value	12-15		t	p-value
	M(Dp)	M(Dp)			M(SD)	M(SD)		
Positive Emotion Differentiation	4.29(0.99)	4.72(1.49)	-2.813	0.007	5.83(2.45)	5.33(1.91)	1.540	0.129
Negative Emotion Differentiation	3.91(0.80)	3.80(1.03)	0.726	0.472	4.70(1.63)	4.88(1.79)	-0.843	0.403
Neutral Emotion Differentiation	3.87(2.39)	3.21(2.55)	2.258	0.029	3.94(1.99)	4.12(2.14)	0.849	0.400
Total Emotion Differentiation	8.21(1.45)	8.53(2.14)	-1.342	0.186	10.53(1.45)	10.22(3.30)	0.678	0.501
Emotion Differentiation Index	12.08(2.93)	11.74(3.51)	0.884	0.31	14.48(4.40)	14.35(4.26)	0.232	0.817

program, however, they were significant only before the program in neutral emotions differentiation (MWU = 9.440; $p = 0.024$) and emotional identification (MWU = 10.500; $p = 0.015$).

Using the Kruskal-Wallis test both before and after the program regarding any relations with school year attendance of those aged 9-11 years-old, we observed that mean ordinations were higher in 5th year students in all dimensions, except for negative and total emotional differentiation (before assessment) and negative emotional differentiation after the program. However, no statistical significance ($p > 0.05$) was observed. In adolescents' group, we noticed higher average ordinations in the 8th year students before assessment of the program and in the 9th year students after educational intervention, without significant statistical differences.

The analysis of mean values of the scale before the socioemotional educational program among groups revealed that both children and adolescents, in general, make little distinction of the emotions. However, the adolescents' group had the highest values in all dimensions which showed a maximum value at positive emotion differentiation scale and a minimum at neutral emotion differentiation scale. We also observed a weak emotional identification index (mean = 14.48) compared with the maximum achievable score (39). Such results indicate that, despite the best score of this group, a low ability in emotional identification and differentiation. After the socioemotional educational program, the mean values increased only in negative and neutral emotional differentiation. In the 9-11 years-old group we previously observed an similar tendency, i.e., low mean values considering the achievable scores and, after the program, we observed an increase in mean values only in positive emotional differentiation and in the total scale (Table 1).

To assess the implementation of socioemotional educational program we used the t-test to determine difference of means based on the global sample and groups' age. There were no significant statistical differences between emotional differentiation measurements carried out before and after the activity. Considering the groups (Table 1) only those aged 9-11 years had results with significant statistical differences, specifically for positive emotion differentiation with an increase in mean values, which indicate increase of this competence ($t = -2.813$; $p = 0.007$); and in neutral emotion differentiation, in which we observed the opposite, i.e., a decrease in mean values that indicated a greater difficulty in neutral emotion differentiation after the educational program ($t = 2.258$; $p = 0.029$) (Table 3).

Discussion

This study results highlight greater ability of older girls to identify and distinguish emotions and reinforced the idea of the impact of education in this environment, especially among younger children.

Despite the different methodology, the Esturgó's study on emotional intelligence and disruptive behaviors including basic education students⁽¹⁰⁻¹⁴⁾, also showed a relationship in terms of sex. His study showed that boys had more disruptive behaviors than girls, and a significant and negative relationship between disruptive behaviors and general indices of emotional intelligence, whereas girls had greater socioemotional competences and more positive behaviors.⁽¹⁵⁾

Scientific literature has studies on socioemotional intervention programs in school context⁽⁹⁻¹³⁾ including students, parents/responsible for education and teachers. These programs are elaborated

with the purpose of changing practices, attitudes and beliefs, show evidences of significant improvement in socioemotional competences and school success. This positive relation is supported by investigations on emotional intelligence⁽³⁾ which has shown that individuals who invest in social and emotional competences learning have better physical and psychological health, better interpersonal relationships, more positive emotional states and, therefore, a more positive attitude towards the surrounding world, including school and teachers.

Other studies conducted with the same objective⁽¹⁶⁻¹⁹⁾ in a sample including 3rd cycle students, parents and teachers obtained similar results to those found in our study; more specifically, a greater ability to identify and distinguish emotions in older girls. Similar studies also consider of great importance teachers' education specially those involved in intervention programs, a crucial condition for the involvement of students and for a more effective implementation, which is related to long-term results for students⁽²⁰⁾. Such interventions, more specifically the interventions carried out with basic education children in terms of making them capable of recognizing and managing emotions, promotes greater abilities to, not only, recognize their own and other people's emotional states more easily, as well as to manage these emotions in a more precisely way in relation to their interactions.

In the studies analyzed within the scope of this investigation,⁽⁹⁻¹⁹⁾ the conclusions pointed out benefits such as greater well-being, greater relational competences, more positive attitudes before common life situations, less internalizing and externalizing behaviors, greater ability to make use of coping strategies, more adaptive behaviors before stressful situations and greater success in school for all children and adolescents involved.⁽²¹⁾

Our results indicate that to apply an emotional identification program for children and adolescents allowed improvements to identify and distinguish some emotions, however, these caused more difficult to identify other emotions. This difficult may be related with unpredictable nature of intervention which reinforces the need of more efficient imple-

mentation to achieve significant and potentially lasting improvements for students.

Conclusion

The sample of this study consisted of 101 children and adolescents. Of these, the majority was girls and aged 9-11 and 12-15 years-old. The socioemotional educational program was partially effective in identifying and distinguishing emotions given the fact that after application, the program showed that children aged 9 to 11 years-old had better competences. This improvement was seen in positive emotion differentiation with an increasing in mean values, therefore, indicating a rise of this competence and in neutral emotion differentiation, in which we noticed the opposite, i.e., a greater difficulty in this ability. Our study show some methodological limitations associated with cross-sectional characteristics of its application, small number of participants, and scarcity in time in before and after approach. The lack of a control group may restrict to determine the influence of the intervention on the program's effectiveness.

Acknowledgements

We thank European Social Fund, CENTRO 2020 and Foundation for Science and Technology - Portuguese Government. These public institutions are the funding sources for the project *MAISaúde Mental* "Monitoring and Assessing Child and Adolescent Mental Health Indicators: From Research to Practice" (reference: CENTRO-01-0145-FEDER-023293).

Collaborations

Campos SMG, Costa MGA, Ferreira M, Ribeiro OP, Costa S, Duarte J, Martins R and Albuquerque C contributed to the conception of the study, analysis and interpretation of data; drafting of the manuscript, critical review relevant for intellectual content and approval of final version to be published.

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