Revista de Psicodidáctica

Original

A nationwide analysis of the effectiveness of a Social and Emotional Learning program in Portugal: Focus on the role of developers' involvement[☆]

Vítor Alexandre Coelho [a,b,*], Ana Maria Romão [a], Patrícia Ribeiro Silva [a], and Sofia Saldanha [a]

[a] *Académico de Torres Vedras, Portugal*
[b] *Psychology for Positive Development Research Center, Universidade Lusíada Norte, Portugal*

ABSTRACT

The current study was the first to analyze the effectiveness of Positive Attitude Secondary School (PASS) Social and Emotional Learning (SEL) program upon the self-perceptions (social, academic, and emotional self-concept and self-esteem) of secondary school students, with a nationwide sample. The study also compared how different levels of developers' involvement (defined as "led", "involved" or "independent") in program implementation influenced its effectiveness. Nine-hundred-nighty-five participants (7th to 9th grade; $M_{age} = 12.95$, $SD = 1.70$) participated in this study, 789 students (37 classes) received the PASS SEL program and 206 (nine classes) took part in the control groups. The program was implemented by the programs' developers in the programs' original setting (Torres Vedras); by another team in another municipality (Cadaval), where the program has been implemented in the last two years ("involved"); and by new teams in six Gulbenkian Academies of Knowledge spread throughout Portugal ("independent"). Self-report questionnaires were administered before and after the intervention. The results from the repeated measures MANOVAs showed that students who participated in the PASS SEL program displayed statistically significant larger gains in social self-concept and self-esteem when compared with students from the control group. However, there were no statistically significant differences in program effectiveness between the different level of developers' involvement in the implementation of the PASS SEL program. Altogether, the results support the effectiveness of the PASS SEL program in enhancing self-perceptions, even with different levels of developers' involvement, which indicates the program is ready for further dissemination.

© 2021 Published by Elsevier España, S.L.U. on behalf of Universidad de País Vasco.

Un análisis a nivel nacional de la efectividad de un programa de aprendizaje socioemocional en Portugal: enfoque sobre el papel de la participación de los creadores

RESUMEN

El presente estudio ha sido el primero en implementar, a nivel nacional, un análisis de la eficacia del programa SEL Actitud Positiva en la Enseñanza Secundaria (PASS) en Portugal sobre las autopercepciones (autoconcepto social, académico y emocional y autoestima) de alumnado de secundaria. Este estudio ha analizado también la forma en que los diferentes niveles de participación de los implementadores (en adelante definidos como "dirigido", "involucrado" o "independiente") en la ejecución del programa han influido en la eficacia de un programa de Aprendizaje Socio-Emocional (SEL). Mil siete participantes (de 7° a 9° curso; $M_{edad} = 12.95$, $DT = 1.70$) han participado en este estudio, 801 alumnos (37 clases) se han beneficiado del programa SEL PASS y 206 (nueve clases) han formado parte del grupo de control.

El programa ha sido "dirigido" directamente por sus creadores en el medio original del programa (Torres Vedras); por otro equipo, en otro municipio (Cadaval) donde el programa ha sido implementado en los últimos dos años ("involucrado"); y por nuevos equipos en seis Academias del Conocimiento de Gulbenkian distribuidas por Portugal ("independiente"). Se han aplicado auto reportes antes y después de la intervención. Los resultados de las MANOVAs de medidas repetidas muestran que los estudiantes que han participado en el programa PASS SEL presentan mayores ganancias estadísticamente significativas en el autoconcepto social y la autoestima en comparación con los estudiantes del grupo de control. Pero no se han encontrado diferencias significativas en efectividad entre los niveles de participación de los implementadores en la ejecución del programa SEL PASS. Los resultados apoyan la eficacia del programa SEL PASS en el aumento de las autopercepciones, incluso con diferentes niveles de participación de los implementadores. Estos resultados indican que el programa el programa está listo para una mayor difusión.

Introduction

Schools play an important role in fostering healthy behaviors and development in children (Domitrovich et al., 2019), and a growing consensus among researchers and practitioners is that social and emotional competencies are crucial for success in school and life (Domitrovich et al., 2019; Zych et al., 2018b). Numerous studies analyzing school-based social-emotional learning (SEL) interventions have shown positive impacts on students' behavioral outcomes, students' attitudes about self and others (Durlak et al., 2011; Taylor et al., 2017), and problematic behaviors such as bullying (Zych et al., 2018a). Specifically, SEL programs have consistently been shown to promote an increase in self-concept and self-esteem (Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016; Coelho et al., 2014; Taylor et al., 2017). This increase is particularly significant because self-concept is considered a protective factor against psychological problems (Delgado et al., 2013); therefore, self-concept enhancement is valued as a highly desirable outcome.

However, according to Jones et al. (2017) there is a lack of studies focusing on differential effectiveness (i.e., what works, for whom it works, and under what conditions). Particularly, Domitrovich et al. (2019) concluded that a limited amount of implementation research is available that focuses specifically on SEL programs. Wigelsworth et al. (2016) highlighted that one of the problems with this reduced amount of research is that recent reviews and meta-analyses of SEL programs (e.g., Durlak et al., 2011) have not distinguished between evaluations led by program developers (or with their involvement) and those conducted by external researchers. The issue is relevant because, as Durlak (2016) concluded, those attempting to follow a program manual on their own rarely achieve desirable outcomes. Therefore, Durlak asserted that outside assistance is needed to achieve effective implementation and recommended that some degree of developer involvement was crucial for SEL programs to achieve better outcomes.

Self-concept

Presently, most researchers use Shavelson et al.'s (1976) multidimensional hierarchical model of self-concept. These authors defined self-concept as "a set of perceptions that a person holds about him or herself based on personal assessment and feedback from significant others" and reinforcements and attributions about one's behavior. Self-concept has been thoroughly studied in the field of psychology due to its importance in shaping personality (Delgado et al., 2013). Furthermore, self-concept is considered a crucial indicator of satisfaction with life (Goñi Palácios et al., 2015) and is closely related to psychosocial adjustment in adolescence (Álvarez et al., 2015). Additionally, several investigations have concluded that self-concept influences crucial school outputs, such as school achievement (Han, 2019; Veas et al., 2019), school

engagement (Veiga et al., 2015; Verdugo et al., 2018), and academic motivation (Green et al., 2012). Therefore, self-concept enhancement is widely suggested as a goal of education (O'Mara et al., 2006).

Among self-concept dimensions there are three that are more likely to be targeted by SEL programs, namely the *social, academic,* and *emotional* self-concept. According to García et al. (2011), *social self-concept* refers to the perception that the subjects have of their performance in social relations, their social network, specifically the ease or difficulty to maintain and expand their social network. The same authors posited that *academic self-concept* refers to the perception that the subjects have of the quality of their role performance as student. Finally, *emotional self-concept* refers to the perception that the subjects have of their emotional state and their responses to specific situations.

In two studies that analyzed the effectiveness of the Positive Attitude Secondary School (PASS) SEL Program with local samples (Coelho et al., 2014; Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016), the authors reported that the program positively impacted *social* and *emotional self-concept*, especially among students with lower levels of *social self-concept* (Coelho et al., 2014).

Self-esteem

Self-esteem is generally viewed as part of self-concept, consisting of "an individual's subjective evaluation of his or her worth as a person" (Orth & Robins, 2019, p. 329). Self-esteem encompasses feelings of global self-worth, general happiness, and satisfaction. This construct has been studied worldwide and cross-culturally (Bleidorn et al., 2016) and is commonly recognized as a vital mental health and emotional well-being indicator (Orth & Robins, 2019) and as a protective factor from violent behavior in adolescence: e.g., bullying and cyberbullying (Zych et al., 2018b). Additionally, Cid-Sillero et al. (2020) found that self-esteem plays a moderating role between cognitive skills and academic performance, and higher self-esteem was associated with better academic performance. Furthermore, previous effectiveness studies of the PASS SEL Program with local samples identified the program's positive impact upon students' self-esteem (Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016).

Individual and class-level variables

Gender

Most studies analyzing gender differences in self-concept have found differences between genders that are consistent with gender stereotypes (Coelho et al., 2014; Esnaola et al., 2018; Fuentes et al., 2015). Several authors have concluded that boys displayed higher scores of *emotional self-concept* than girls (Esnaola et al., 2020; Fuentes et al., 2015). Meanwhile, Fuentes et al. (2015) reported

Chart 1 Positive attitude secondary school SEL program description.

Goals	To improve children's social and emotional competencies by helping them develop the five key competencies proposed by the CASEL (2015): self-awareness, self-control, social awareness, relationship skills, and responsible decision making.
Sessions	1st and 2nd sessions: Initial assessment and ice-breaking activities. 3rd to 7th sessions: Constitute a unit more focused on self-awareness and self-management enhancement. 8th to 12th sessions: Constitute a unit more focused on social awareness, relationship skills and responsible decision-making. 13th session – Final assessment.
Assessment and evaluation	Self and teacher reports questionnaires are administrated in the first and last session of the program.

that boys had higher levels than girls in *academic self-concept.* Studies have also found gender differences in *self-esteem* with boys reporting higher *self-esteem* than girls (Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016; Cid-Sillero et al., 2020; Esnaola et al., 2020). More relevantly, several studies have concluded that boys and girls benefitted differently in several self-concept dimensions from participation in SEL programs. Boys were reported to benefit more from participating in SEL programs in *social self-concept* (Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016), whereas girls gained more from participating in SEL programs in *academic self-concept* (Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016; Sarriera et al., 2015) and *emotional self-concept* (Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016). For *self-esteem*, previous studies did not identify gender-specific differential gains from program participation (Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016).

Grade

Several authors (Marsh, 1989; Marsh & Ayotte, 2003; Orrego et al., 2017) have concluded that more realistic self-evaluations were associated with increased age, causing declines in several self-concept domains during adolescence (Marsh & Ayotte, 2003). Marsh (1989) concluded that *academic*, physical, and *social self-concept* suffered reductions from the seventh grade to the ninth grade. Orrego et al. (2017) reported the same effect on self-esteem. The researchers analyzed a large sample of Chilean students from the third to the eighth grade and concluded that students displayed lower levels of *self-esteem* as grade levels increased. Although few studies have analyzed the differential effectiveness of SEL programs according to grade, Coelho, Marchante, and Jimerson (2016); Coelho, Marchante, and Sousa (2016) found that fourth graders' *social* and *emotional self-concept* benefited more than seventh graders participating in similar SEL programs.

Classroom size

Classrooms are social settings in which students are involuntary members and where they spend most of their time at school and interact with other students daily. Some studies have concluded that students from smaller classes were more supportive and caring of each other (Finn et al., 2003). Furthermore, the classroom is the primary setting for most SEL programs; therefore, emotionally supportive, and well-organized classrooms can improve student-level outcomes (Jones et al., 2017).

Developers' involvement

Eisner (2009) reported that when the program developer is involved in implementing an intervention, the intervention displays better results. Eisner proposed two possible explanations for these results: the cynical view and the high-fidelity view. The cynical view posits that the more positive results in developer-led trials were due to an influence of systematic biases affecting decision-making processes during a study. The high-fidelity view assumes developer-led programs result in superior implementation. SEL-related research has provided evidence that developer involvement may influence program results (Humphrey et al., 2016; Wigelsworth et al., 2016). Wigelsworth et al. (2016) proposed involving the programs' developers in program implementation can be classified as "led," involved," or "independent," according to whether a study is identified as receiving developer support. Although SEL programs seem to have worse results in independent replications than in program-developer implementations (Durlak, 2016), the influence of program developers' involvement level in SEL programs' evaluation and application remains unclear and unexplored (Wigelsworth et al., 2016). Wigelsworth et al. (2016) warned of difficulties in expected-outcome replication that wider disseminations of programs display. These authors concluded that if the interventions' intended outcomes can only be achieved when the program developer is available, then the program's broad dissemination and sustainability in different settings might be compromised. Accordingly, studying the ways the developers' involvement influences the PASS SEL programs' effectiveness is essential.

PASS SEL program

The PASS SEL program is one of a set of three developmentally appropriate universal SEL programs developed by the *Académico de Torres Vedras* in a municipality of the district of Lisbon (Torres Vedras). The program was first implemented in 2004, and its contents and activities are described in detail in Coelho and Figueira (2011). Currently, the program is composed of 13 weekly 50-minute sessions delivered by a trained educational psychologist (in the class teacher's presence). The sessions follow a program manual that contains detailed lesion plans. The program is based on Collaborative Academic, Social, and Emotional Learning's theoretical framework (see CASEL, 2015); therefore, it is a classroom-based intervention, which includes all students in each class, infuses into the school curriculum, and integrates into a multiannual project (Project Positive Attitude). Additional information about the program is displayed in Chart 1.

Gulbenkian academies for knowledge

In 2018, the Calouste Gulbenkian Foundation launched a national initiative called Gulbenkian Academies for Knowledge (GAK), which aimed to develop social and emotional competencies in children and youth by disseminating blueprint Portuguese interventions. In the next year, the PASS SEL program was chosen as one of the blueprint programs targeted for replication. After a two-stage selection process, six academies across Portugal were established in seven different municipalities: one in the north (Vizela), one in the center (Pombal), two in the Lisbon and Tagus Valley region (Lisbon

Table 1
Descriptives conditions across gender, grade and class size

Characteristic	Total	Control group $n = 206$ (20.7%)	Intervention group $n = 789$ (79.3%)		
			Led $n = 220$ (22.1%)	Involved $n = 92$ (9.3%)	Independent $n = 477$ (47.9%)
Gender	$\chi^2(3, N = 995) = 7.10, p = .069$				
Male	528 (52.4%)	98 (47.6%)	114 (51.8%)	41 (44.6%)	275 (56.2%)
Female	479 (47.6%)	108 (52.4%)	106 (48.2%)	51 (55.4%)	214 (43.8%)
Grade	$\chi^2(6, N = 995) = 6.11, p = .411$				
7th Grade	603 (59.9%)	116 (56.3%)	139 (63.2%)	47 (51.1%)	301 (61.5%)
8th Grade	188 (18.7%)	44 (21.4%)	37 (16.8%)	22 (23.9%)	85 (17.5%)
9th Grade	216 (21.4%)	46 (22.3%)	44 (20.0%)	23 (25.0%)	103 (21.0%)
Class size	$F(3, 15.3) = 2.07, p = .147$[a]				
N	46	9	10	4	23
M (SD)	21.89 (3.92)	22.89 (3.26)	22.00 (2.70)	23.00 (0.82)	21.26 (3.36)

Note. $N = 995$.

[a] Welch's F.

and Setúbal), one in the south (covering the Faro and Loulé municipalities) and another one in the archipelago of Madeira (Caniçal).

The present study

Several issues have received limited attention in the literature regarding SEL programs' effectiveness. Some of the more relevant issues include the fact that most SEL-effectiveness studies have been conducted in elementary schools (Durlak et al., 2011), which amplifies the need to conduct studies with secondary school students. Another relevant issue, according to Durlak (2016), is identifying of which factors sustain program effectiveness. Prominent among these factors is the impact of developer involvement as proposed by Eisner (2009). Wigelsworth et al. (2016) reported that program where the developers led or were involved in the implementation yielded better results in attitudes towards the self than programs where the implementation was independent of the developers. Therefore, the current study has two main aims. The first is reassessing the effectiveness of the PASS SEL program on the self-concept and self-esteem of secondary school students, using a nationwide sample while controlling for gender, grade, and classroom size. The second is to analyze if different types of program developers' involvement in program implementation influence the program's effectiveness.

Regarding the first aim we formulated several hypotheses, according to previous studies that analyzed the effectiveness of the PASS SEL Program. Although no gains should be expected for *academic self-concept*, we hypothesize that, when compared to control-group students, intervention-group students will report more gains in *social self-concept* (Hypothesis 1), *emotional self-concept* (Hypothesis 2), and in *self-esteem* (Hypothesis 3). Furthermore, given previous findings (Coelho et al., 2014; Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016) regarding gender differences from program participation, we expect that boys and girls will benefit differently from participating in the PASS SEL program (Hypothesis 4). Regarding the second aim and following Wigelsworth et al.'s (2016) assertion, we hypothesize that developer-led implementations will exhibit more positive results in self-perceptions than when the implementation is independent (Hypothesis 5).

Method

Participants

The students who participated in this study were part of wave one of a nationwide dissemination initiative of the PASS SEL program. This initiative was part of the Gulbenkian Academies of Knowledge (GAK) program, which sponsored programs in Portugal considered as blueprints in SEL programming. Nine hundred nighty-five secondary school students (7th–9th grade) from 46 classrooms in twelve Portuguese secondary public schools participated in this study. Seven hundred eighty-nine students received the intervention (37 classes; $M_{classsize} = 21.32$ students) and 206 students composed the control groups (9 classes; $M_{classsize} = 22.89$ students). Five hundred and twenty-one (52.4%) students were boys and 474 (47.6%) were girls; two students identified their gender as other. Students' age ranged from 11 to 17 years ($M_{age} = 12.95$, $SD = 1.70$) in their first assessment (September/October 2019). The total number of students per school class ranged between fourteen and twenty-seven ($M = 21.63$, $SD = 3.46$). There were no significant differences in group composition between control and intervention groups regarding gender, $\chi^2(1, N = 995) = 2.45$; $p = .117$; grade, $\chi^2(2, N = 995) = 1.65$, $p = .439$; or classroom size, $t(44) = 1.62$, $p = .112$, $d = 0.55$. Also, as displayed in Table 1, there were no statistically significant differences in group composition between the different developers' involvement groups regarding gender or classroom size, however we did find statistically significant differences between grades in this condition.

There were several sources for the 9.8% rate of attrition. In four classes (76 students), including one from the control group, it was not possible to conclude program implementation before the implementation of online schooling, a measure taken because of the COVID-19 pandemic; so, they were not included in the sample. Also not included in the sample were eleven students whose parents opted out of the assessments in the classrooms assessed, even though the program implementation was integrated in a mandatory school subject dedicated to citizenship. Furthermore, twelve students did not complete either of the assessments because they were absent in the days when assessments took place. Out of the 995 students included in the sample, 992 (99.7%) students completed the first assessment and 971 (97.6%) completed the second assessment. Most students who did not complete the second assessment had either moved to another school or were absent from school in the days of the assessments.

Instruments

Self-concept. The Portuguese children and adolescent version (Coelho et al., 2015) of the Auto-Concepto Forma 5 (AF-5; García & Musitu, 2001; García et al., 2006) was used. The AF-5 is one of the most widely used scales worldwide for the multidimensional measurement of self-concept (García et al., 2018). In the current study we used three of the five self-concept dimensions assessed by this instrument: *social* (e.g. "I am a friendly person"); *academic* (e.g. "I

work a lot in classes"), *emotional* (e.g., reverse scored, "I am easily freightened"). In this version (Coelho et al., 2015), the 30 items are answered on a 5-point scale (ranging from 1- Never, to 5 – Always). The factor structure and the construct validity of this instrument have been confirmed in several studies using exploratory and confirmatory factor analysis in samples of several countries including Portugal (Coelho et al., 2015); Spain (Delgado et al., 2013); and Brazil (Garcia et al., 2018). Internal consistency is also adequate, as seen by Cronbach's α: *social* (.70); *academic* (.83); *emotional* (.77).

Self-esteem. Self-esteem was assessed through the Global Self-Esteem scale (Portuguese version; Fontaine, 1991) of the Self-Description Questionnaire II (Marsh et al., 1983). This scale assesses global self-worth. The scale is composed by 10 items (e.g.: "In general I feel happy with the way I am") rated in a five-point scale (1 – false; 2 – mostly false, 3 – neither true nor false, 4 – mostly true and 5 – true); five items are presented as negative statements. The scale's internal consistency was adequate for both versions (original and Portuguese adaptation) with Cronbach's α = .88 and .82, respectively.

Procedure

For all conditions, school grouping boards chose in which grade the PASS SEL program would be implemented. The program developers were informed which classes were assigned as control and intervention groups. Therefore, this study used a convenience sample and a quasi-experimental design because it was impossible to randomly distribute the participants across all conditions. Passive parental consent was used because the program was implemented in a subject that was part of the school curriculum and schedule. Parents who wished to exclude their children from assessment returned parental forms via the regular school channels. Students were assured of the confidentiality of their answers. The data for the present study were collected at two moments during the school year using an online platform (which prevented missing answers): The pre-test was implemented in the first weeks of the school year (September–October 2019: T1); the post-test took place in the middle of the school year after the end of Wave 1's implementation (January/February 2020: T2). The Psychology for Positive Development Research Center approved the present study, and it was conducted following the national professional code of ethics for psychologists, following national legislation. The same educational psychologists implemented the questionnaires in both assessments in the students' regular classrooms and in their teachers' presence.

The different types of developer's involvement were categorized as (a) Led, where the program developers are also the implementers in the original setting (PASS Torres Vedras). For the present study, we considered groups in Torres Vedras as being developer-led; (b) Involved, during the last two school years a new implementation project was established in the Cadaval municipality (PASS Cadaval). In this project, after receiving training for implementing the PASS SEL program, the implementers were integrated into a twice-monthly supervision group run by the program developers. They also received frequent supervisory visits by program developers; (c) Independent, the GAK was considered the independent condition. The developers' support provided for each academy included 35 hours of training (28 hours in small groups and seven hours onsite), monitoring and supervision (two full days onsite throughout the SEL program's implementation), and an online platform for registering students' assessment, attendance, and implementation-fidelity indicators.

Data analysis

The required sample size was determined using the G*Power 3.1 software (Faul et al., 2009) for a repeated measures multivariate analysis of variance (MANOVA) with within-between interactions, four groups, and two measurements and considering the following input parameters: effect size f(V) = .25, α = .05, statistical power = .95. Results showed that a sample size of 279 participants (70 per group) would be the minimum required sample size, and this was respected in the present study for all samples under analysis. Next, the internal consistency of the instruments used was tested with the study's sample using Cronbach's α index, and McDonald's ω coefficient. To further assess the reliability and validity of the instruments, the Composite Reliability Index (CRI), and the Average Variance Extracted (AVE) were also calculated. Then, *T* tests were used, for comparisons regarding initial levels of social and emotional competencies between control and intervention groups and between genders. One-way ANOVAs were used to compare initial levels of social and emotional competencies between different levels of developers' involvement (led vs. involved vs. independent).

Finally, to analyze the hypotheses posed, a series of repeated measures MANOVAs were performed to explore pre-post intervention increases according to the group conditions, while controlling for gender, grade, and classroom size. This statistical test is recommended to differences between two or more independent groups where participants have repeated measures. The first MANOVA assessed the effectiveness of program effects, and it used 'time' (pretest vs. posttest) as a within-subjects factor and 'group' (control vs. intervention) as a between-subjects factor and 'gender' (boys vs. girls), 'grade' (7th vs. 8th vs. 9th grade) and 'classroom size' as between-subjects' covariates. A second repeated measures ANOVA was created to analyze potential differential gains by from participation in the program, so it focused on the interaction between 'time' $\times$ 'group' $\times$ 'gender'. The third repeated measures MANOVA assessed potential differences in program effectiveness between different levels of developers' involvement; this MANOVA was similar to the first, but with 'type of developers' involvement (led vs. involved vs. independent) as the between-subjects factor instead of 'group'. Only participants who had data for both time points were included in the MANOVAs (*n* = 968); due to the use of the online platform there were no missing values in participant responses. The measure of effect size (ES) used was derived from ANOVA as partial eta-squared (η_p^2). According to the criteria established by Tabachnick and Fidell (2007), the effect size can be considered small if $.01 < \eta_p^2 \leq .089$; medium if $.09 \leq \eta_p^2 \leq .249$; and large if $\eta_p^2 \geq .25$). The data was analyzed with the statistical software SPSS 22.0 (IBM, 2013).

Results

Preliminary analysis

The internal consistency for all the subscales used was adequate: *social self-concept* (α = .74, ω = .75); *academic self-concept* (α = .83, ω = .89); *emotional self-concept* (α = .76, ω = .78); and *self-esteem* (α = .85, ω = .89). Furthermore, the values obtained for other reliability and validity indexes were also suitable for each of the subscales: *social self-concept* (CRI = .80, AVE = .51); *academic self-concept* (CRI = .91, AVE = .62); *emotional self-concept* (CRI = .84, AVE = .55); and *self-esteem* (CRI = .92, AVE = .52). Regarding potential differences in pre-test levels, no statistically significant differences between intervention and control groups were found in any dimension: *social self-concept*, $t(990) = 0.82$, $p = .412$, $d = 0.07$; *academic self-concept*, $t(990) = 0.24$, $p = .808$, $d = 0.05$; *emotional self-concept*, $t(990) = -0.35$, $p = .724$, $d = 0.02$; and *self-esteem*, $t(990) = 1.44$, $p = .150$, $d = 0.12$. However, when there were statistically significant differences between genders found in all variables: *social self-concept*, $t(990) = 2.66$, $p = .008$, $d = 0.16$; *academic self-concept*, $t(990) = -3.53$, $p < .001$, $d = 0.23$; *emotional self-concept*,

Table 2
Means and standard deviations of self-perception in the pretest and posttest for the control and intervention group; *F* values and effect sizes for the time × group adjusted for gender, grade and classroom size

	PreTest		PostTest		*F*	*p*	η_p^2
	Control	Intervention	Control	Intervention			
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)			
Social SC	23.34 (3.73)	23.13 (3.69)	23.05 (3.49)	23.38 (3.56)	6.10	.014	.006
Academic SC	20.83 (3.81)	20.73 (4.30)	20.53 (3.72)	20.41 (4.08)	0.03	.870	.000
Emotional SC	19.39 (4.10)	19.59 (4.49)	19.52 (3.75)	20.09 (4.23)	1.46	.227	.002
Self-esteem	37.67 (7.66)	36.77 (7.61)	37.28 (6.94)	37.92 (7.08)	12.77	<.001	.013

Note. N = 995; SC = Self-concept.

Table 3
Means and standard deviations of self-perceptions in the pretest and posttest for the control and intervention group, by gender

	PreTest				PostTest			
	Control		Intervention		Control		Intervention	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Social self-concept	24.11 (3.20)	22.07 (4.05)	23.29 (3.58)	22.94 (3.80)	23.56 (3.13)	22.59 (3.74)	23.56 (3.50)	23.17 (3.63)
Academic self-concept	20.59 (3.88)	21.04 (3.76)	20.22 (4.28)	21.31 (4.25)	20.20 (3.96)	20.81 (3.50)	19.94 (4.15)	20.96 (3.95)
Emotional self-concept	20.85 (3.78)	18.10 (3.96)	20.57 (4.15)	18.47 (4.61)	21.25 (2.99)	17.98 (3.71)	21.06 (3.93)	18.97 (4.29)
Self-esteem	40.01 (6.20)	35.59 (8.24)	37.32 (7.49)	36.14 (7.70)	38.92 (6.36)	35.82 (7.12)	38.66 (8.29)	37.07 (7.75)

Note. N = 995.

Table 4
Means and standard deviations of the self-perception in the pretest and posttest for the different developer's involvement groups; *F* values and effect sizes for the time × development involvement adjusted for gender, grade and classroom size

	PreTest			PostTest			*F*	*p*	η_p^2
	Led	Involved	Indep.	Led	Involved	Indep.			
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)			
Social self-concept	23.37 (3.52)	23.40 (3.69)	22.96 (3.76)	24.03 (3.39)	23.56 (3.61)	23.05 (3.60)	1.23	.292	.003
Academic self-concept	21.33 (3.80)	20.66 (4.73)	20.47 (4.40)	20.65 (3.59)	20.92 (4.20)	20.21 (4.26)	2.26	.105	.006
Emotional self-concept	19.79 (3.99)	20.73 (4.16)	19.29 (4.72)	20.66 (3.76)	20.67 (4.18)	19.73 (4.41)	1.76	.173	.005
Self-esteem	37.08 (7.23)	37.62 (7.61)	36.48 (7.77)	38.76 (7.57)	39.27 (7.36)	37.29 (7.92)	1.60	.204	.004

Note. N = 789; Indep. = Independent.

$t(990) = 8.26$, p = <.001, $d = 0.52$; and *self-esteem*, $t(990) = 3.97$, $p < .001$, $d = 0.24$, with boys reporting higher level of *social* and *emotional self-concept* as well as *self-esteem*, and girls reporting presenting higher levels of *academic self-concept*. Regarding the different types of developers' involvement students there was only one statistically significant differences in the pretest, *emotional self-concept*, $F(2, 783) = 5.08$, $p = .006$, with the students from the involved condition displaying higher levels of *emotional self-concept* than students from the independent condition. There were no other statistically significant differences in the pretest between the three types of developers' involvement in any other variables: *social self-concept*, $F(2, 783) = 1.36$, $p = .258$; *academic self-concept*, $F(2, 783) = 2.74$, $p = 0.065$; and *self-esteem*, $F(2, 783) = 1.12$, $p = .328$.

Program effects on self-concept and self-esteem

A preliminary comparative description through a multivariate analysis of the results obtained by control and implementation groups through time revealed statistically significant differences, Wilks' $\lambda = .984$, $F(4, 963) = 3.98$, $p = .003$, $\eta_p^2 = .016$, indicating a small beneficial effect for student who received the PASS SEL program. Table 2 displays the descriptive statistics for the control and intervention groups in the pretest and posttests for each self-perception, as well as the MANOVA results for the interaction effect between time and group, including their effect size. Results showed a significant interaction effect (time × group) with intervention groups displaying a more positive trajectory in *social self-concept*

and *self-esteem*. The effect sizes found were small for both outcomes. Furthermore, no statistically significant main effects were found in any dimension for neither time nor group.

Differential program effects by gender

A preliminary comparative description through a multivariate analysis of the results obtained by control and implementation groups by time did not reveal a statistically significant difference, Wilks' $\lambda = .995$, $F(4, 962) = 1.22$, $p = .300$, $\eta_p^2 = .005$. Table 3 displays the descriptive statistics for the control and intervention groups, by gender, in the pretest and posttests for each self-perception. The results showed no significant interaction effect between time, group and gender in any dimension: *social self-concept*, $F(1, 965) = 1.05$, $p = .307$, $\eta_p^2 = .001$; *academic self-concept*, $F(1, 965) = 0.29$, $p = .590$, $\eta_p^2 = .000$; *emotional self-concept*, $F(1, 965) = 0.76$, $p = 0.384$, $\eta_p^2 = .001$; and *self-esteem*, $F(1, 965) = 2.77$, $p = .096$, $\eta_p^2 = .003$.

Developers' involvement impact on program effectiveness

A preliminary comparative description through a multivariate analysis of the results obtained between different levels of developers' involvement groups through time did not reveal statistically significant differences, Wilks' $\lambda = .982$, $F(8, 1528) = 1.975$, $p = .082$, $\eta_p^2 = .009$. Table 4 displays the descriptive statistics for the control and intervention groups in the pretest and posttests for each

self-perception, as well as the MANOVA results for the interaction effect between time and type of developers' involvement, including their effect size. Results showed there were no statistically significant interaction effects (time × type of developers' involvement). Furthermore, no statistically significant main effects were found in any dimension for neither time nor group.

Discussion

The present study had two main aims. First, it reassessed the PASS SEL program's effectiveness on secondary school students' self-perceptions (namely *social*, *academic*, and *emotional self-concept* and *self-esteem*). The study utilized a nationwide sample, which included students from Portugal's five main geographical regions. Second, it aimed to analyze how different levels of developers' involvement in program implementation influenced the effectiveness of the SEL program, while controlling for gender, grade, and classroom size.

Regarding the first aim, the results showed that students who participated in the PASS SEL program displayed more gains in *social self-concept* and *self-esteem* than students in the control group. Statistically, no significant differences emerged between the two groups in *academic* and *emotional self-concept*. Therefore, the results supported Hypotheses 1 and 3, but not Hypothesis 2. Accordingly, the results regarding *social self-concept* and *self-esteem* align with previous studies (Coelho et al., 2014; Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016). However, the current study's results did not support the gains from program participation in *emotional self-concept* as identified in previous literature. The present study's results also showed gender differences in the initial levels of every self-perception. Boys displayed higher levels of *social* and *emotional self-concept*, as well as *self-esteem*, and girls displayed higher levels of *academic self-concept*. These results align with several authors (Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016; Esnaola et al., 2020; Sarriera et al., 2015). However, program participation did not result in a difference in gains between genders in any dimension of self-perceptions. Thus, the results did not support Hypothesis 4 and they contradicted previous studies (Coelho et al., 2014; Coelho, Marchante, & Jimerson, 2016; Coelho, Marchante, & Sousa, 2016), where boys gained more in *social* and *emotional self-concept* than girls from participating in the program. Therefore, the nationwide replication of the PASS SEL program did not follow the same pattern of results as the previous studies with local samples. Moreover, the program yielded similar results for both genders.

Regarding the second aim, we did not find statistically significant differences in any self-perceptions between locations where the developers led the implementation, were involved or there was an independent implementation of the PASS SEL Program. Therefore, the results did not support Hypothesis 5: The developer-led implementations or those involving the developers did not yield better outcomes than those with less developer involvement (i.e., more developer involvement was not associated with better results). These results contradict Eisner (2009) and Wigelsworth et al. (2016), in this last case regarding attitudes toward the self. This lack of differences in results associated with different levels of developers' involvement may be, in part, explained by three factors. First, the training in the PASS SEL program is more extensive than in most other programs (Domitrovich et al., 2019; Durlak et al., 2011; Humphrey et al., 2016). Second, all the developers had two days of onsite support and supervision from the program's creators, which is also broader than other programs (Humphrey et al., 2016). Domitrovich et al. (2015) considered this type of support an important strategy and a predictor of program efficacy. Third, the implementers were all trained in Educational Psychology and, although they had no previous experience with the PASS SEL pro-

gram, were experienced in this area of expertise. Therefore, the current study's results support Wigelsworth et al.'s (2016) conclusion that developer involvement alone is not enough to explain the variation in programs' results. Wigelsworth et al. argued that simultaneously assessing other issues with implementation is necessary.

Overall, the results from the present nationwide study of the PASS SEL program mostly confirm its effectiveness, although the results are not as broad as in previous studies with local samples. Furthermore, the results achieved from implementing the PASS SEL program did not indicate that developers' involvement was a significant influence. As such, the results from the current nationwide implementation indicate that the program is ready for dissemination with the same level of training and support provided for the GAK group (i.e., the independent implementation group). Therefore, the program can be recommended for self-concept enhancement, and self-concept enhancement is a goal that some authors consider crucial (O'Mara et al., 2006), due to its positive influence over school achievement (Han, 2019; Veas et al., 2019) and school engagement (Veiga et al., 2015; Verdugo et al., 2018).

Limitations

This study contains some limitations. One aspect to consider is that data collection was compromised by the Covid-19 outbreak in the second half of the 2019–2020 school year. Therefore, four groups could not finish their participation in the PASS SEL program. Given the current pandemic situation, which will continue into the following school year, conducting a follow-up assessment to analyze the program's effects over time will not be possible. An essential consideration is that this study is the first to analyze developers' involvement in the PASS SEL program implementation. Therefore, additional groups are needed to analyze other aspects of implementation quality that may help explain the current findings.

Future studies

Following Eisner (2009) and Wigelsworth et al. (2016), other quality implementation variables (beyond developers' involvement alone) is vital to explaining the variance in program outcomes. Therefore, future studies should analyze how dosage, fidelity, implementers' experience, or intensity may influence the PASS SEL program's effectiveness for the program to be fully ready for dissemination.

References

Álvarez, A., Suárez, N., Tuero, E., Núnez, J. C., Valle, A., & Regueiro, B. (2015). Implicación familiar, autoconcepto y rendimiento académico. *European Journal of Investigation in Health, Psychology and Education, 5*(3), 293–311. https://doi.org/10.30552/ejihpe.v5i3.133

Bleidorn, W., Arslan, R. C., Denissen, J. J. A., Rentfrow, P. J., Gebauer, J. E., Potter, J., & Gosling, S. D. (2016). Age and gender differences in self-esteem: A cross-cultural window. *Journal of Personality and Social Psychology, 111*(3), 396–410. https://doi.org/10.1037/pspp0000078

Cid-Sillero, S., Pascual-Sagastizabal, E., & Martínez-de-Morentin, J. I. (2020). Influence of self-esteem and attention on the academic performance of ESO and FPB students. *Revista de Psicodidáctica, 25*(1), 59–67. https://doi.org/10.1016/j.psicoe.2019.10.001

Coelho, V. A., & Figueira, A. P. (2011). Project "Positive Attitude": Promoting school success through social and emotional abilities development. Design for elementary and middle school students, in Portugal. *Interamerican Journal of Psychology, 45*, 185–192.

Coelho, V., Marchante, M., & Jimerson, S. R. (2016). Promoting a positive middle school transition: A randomized-controlled treatment study examining self-concept and self-esteem. *Journal of Youth and Adolescence, 43*, 29–38. https://doi.org/10.1007/s10964-016-0510-6

Coelho, V., Marchante, M., & Sousa, V. (2016). Positive attitude program's impact upon self-concept across childhood and adolescence. *Revista de Psicodidáctica, 21*, 261–280. https://doi.org/10.1387/RevPsicodidact.15129

Coelho, V., Sousa, V., & Figueira, A. (2014). The impact of a school-based social and emotional learning program on the self-concept of middle school students. *Revista de Psicodidáctica*, *19*, 347–365. https://doi.org/10.1387/RevPsicodidact.10714

Coelho, V., Sousa, V., Marchante, M., & Romão, A. R. (2015). Validation of the questionnaire Self-Concept Form-5 with a sample of Portuguese children and adolescents. *International Journal of Developmental and Educational Psychology*, *1*(1), 67–78.

Collaborative for Academic, Social, and Emotional Learning. (2015). *2015 CASEL guide: Effective social and emotional learning programs (Middle and high school edition)*. Author.

Delgado, B., Inglés, C. J., & García-Fernández, J. M. (2013). Social anxiety and self-concept in adolescence. *Revista de Psicodidáctica*, *18*(1), 179–194. https://doi.org/10.1387/RevPsicodidact.6411

Domitrovich, C. E., Pas, E. T., Bradshaw, C. P., Becker, K. D., Keperling, J. P., Embry, D. D., & Ialongo, N. (2015). Individual and school organizational factors that influence implementation of the PAX Good Behavior Game intervention. *Prevention Science*, *16*, 1064–1074. https://doi.org/10.1007/s11121-015-0557-8

Domitrovich, C. E., Li, Y., Mathis, E. T., & Greenberg, M. T. (2019). Individual and organizational factors associated with teacher self-reported implementation of the PATHS curriculum. *Journal of School Psychology*, *76*, 168–185. https://doi.org/10.1016/j.jsp.2019.07.015

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405–432. https://doi.org/10.1111/j.1467-8624.2010.01564.x

Durlak, J. A. (2016). Programme implementation in social and emotional learning: Basic issues and research findings. *Cambridge Journal of Education*, *46*(3), 333–345. https://doi.org/10.1080/0305764X.2016.1142504

Eisner, M. (2009). No effects in independent prevention trials: Can we reject the cynical view? *Journal of Experimental Criminology*, *5*, 163–183. https://doi.org/10.1007/s11292-009-9071-y

Esnaola, I., Elosua, P., & Freeman, J. (2018). Internal structure of academic self-concept through the Self-Description Questionnaire II-Short (SDQII-S). *Learning and Individual Differences*, *62*, 174–179. https://doi.org/10.1016/j.lindif.2018.02.006

Esnaola, I., Sesé, A., Antonio-Aguirre, I., & Azpiazu, L. (2020). The development of multiple self-concept dimensions during adolescence. *Journal of Research on Adolescence*, *30*(S1), 100–114. https://doi.org/10.1111/jora.12451

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160. https://doi.org/10.3758/brm.41.4.1149

Finn, J. D., Pannozzo, G. M., & Achilles, C. M. (2003). The 'Why's' of class size: Student behavior in small classes. *Review of Educational Research*, *73*(3), 321–368. https://doi.org/10.3102/00346543073003321

Fontaine, A. M. (1991). Desenvolvimento do conceito de si próprio e realização escolar na adolescência. *Psychologica*, *5*, 13–31.

Fuentes, M. C., García, F., Gracia, E., & Alarcón, A. (2015). Parental socialization styles and psychological adjustment. A study in Spanish adolescents. *Revista de Psicodidáctica*, *20*(1), 117–138. https://doi.org/10.1387/RevPsicodidact.10876

García, F., Martínez, I., Balluerka, N., Cruise, E., Garcia, O. F., & Serra, E. (2018). Validation of the Five-Factor Self-Concept Questionnaire AF5 in Brazil: Testing factor structure and measurement invariance across language (Brazilian and Spanish), gender and age. *Frontiers in Psychology*, *9*, 2250. https://doi.org/10.3389/fpsyg.2018.02250

García, F., & Musitu, G. (2001). *Autoconcepto Forma 5*. Madrid: TEA.

García, J. F., Musitu, G., Riquelme, E., & Riquelme, P. (2011). A confirmatory factor analysis of the "Autoconcepto Forma 5" questionnaire in young adults from Spain and Chile. *Spanish Journal of Psychology*, *14*(2), 648–658. https://doi.org/10.5209/rev_SJOP.2011.v14.n2.13

García, J. F., Musitu, G., & Veiga, F. (2006). Self-concept in adults from Spain and Portugal. *Psicothema*, *18*, 551–556. http://www.psicothema.com/pdf/3252.pdf

Goñi Palácios, E., Echaniz, I. E., Fernández, A. R., & De Barrón, I. C. O. (2015). Personal self-concept and satisfaction with life in adolescence, youth and adulthood. *Psicothema*, *27*(1), 52–58. https://doi.org/10.7334/psicothema2014.105

Green, J., Liem, G., Martin, A. J., Colmar, S., Marsh, H. W., & McInerney, D. (2012). Academic motivation, self-concept, engagement, and performance in high school: Key processes from a longitudinal perspective. *Journal of Adolescence*, *35*, 1111–1122. https://doi.org/10.1016/j.adolescence.2012.02.016

Han, F. (2019). Longitudinal relations between school self-concept and academic achievement. *Revista de Psicodidáctica*, *24*(2), 95–102. https://doi.org/10.1016/j.psicod.2019.03.001

Humphrey, N., Barlow, A., Wigelsworth, M., Lendrum, A., Pert, K., Joyce, C., Stephens, E., Wo, L., Squires, G., Woods, K., Calam, R., & Turner, A. (2016). A cluster randomized controlled trial of the Promoting Alternative Thinking Strategies (PATHS) curriculum. *Journal of School Psychology*, *58*, 73–89. https://doi.org/10.1016/j.jsp.2016.07.002

Jones, S. M., Barnes, S. P., Bailey, R., & Doolittle, E. J. (2017). Promoting social and emotional competencies in elementary school. *The Future of Children*, *27*(1), 49–72. https://doi.org/10.1353/foc.2017.0003

Marsh, H. W. (1989). Age and sex effects in multiple dimensions of self-concept: Preadolescence to early adulthood. *Journal of Educational Psychology*, *81*, 417–430. https://doi.org/10.1037/0022-0663.81.3.417

Marsh, H. W., & Ayotte, V. (2003). Do multiple dimensions of self-concept become more differentiated with age? The differential distinctiveness hypothesis. *Journal of Educational Psychology*, *95*(4), 687–706. https://doi.org/10.1037/0022-0663.95.4.687

Marsh, H. W., Relich, J. D., & Smith, I. D. (1983). Self-concept: The construct validity of interpretations based upon SDQ. *Journal of Personality and Social Psychology*, *45*, 173–187. https://doi.org/10.1037/0022-3514.45.1.173

Orrego, T. M., Müller, N. M., & García, M. J. P. (2017). La autoestima en alumnos de 3° a 8° básico. Una mirada por nivel de escolaridad y género. *Revista Iberoamericana de Evaluación Educativa*, *10*(2), 111–125. https://doi.org/10.15366/riee2017.10.2.006

Orth, U., & Robins, R. W. (2019). Development of self-esteem across the lifespan. In D. P. McAdams, R. L. Shiner, & J. L. Tackett (Eds.), *Handbook of personality development* (pp. 328–344). Guilford.

O'Mara, A. J., Marsh, H. W., Craven, R. G., & Debus, R. (2006). Do self-concept interventions make a difference? A synergistic blend of construct validation and meta-analysis. *Educational Psychologist*, *41*(3), 181–206. https://doi.org/10.1207/s15326985ep4103_4

Sarriera, J. C., Casas, F., Bedin, L. M., Abs, D., Ramos, B., Borges, F. C., Malo, S., & González, M. (2015). Propriedades psicométricas da Escala de Autoconceito Multidimensional em adolescentes brasileiros. *Avaliação Psicológica*, *14*(2), 281–290. https://doi.org/10.15689/ap.2015.1402.13

Shavelson, J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretation. *Review of Educational Research*, *46*(3), 407–442. https://doi.org/10.3102/00346543046003407

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Allyn and Bacon.

Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through schoolbased social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development*, *88*(4), 1156–1171. https://doi.org/10.1111/cdev.12864

Veas, A., Castejón, J., Miñano, P., & Gilar-Corbí, R. (2019). Early adolescents' attitudes and academic achievement: The mediating role of academic self-concept. *Revista de Psicodidáctica*, *24*(1), 71–77. https://doi.org/10.1016/j.psicoe.2018.11.002

Veiga, F. H., García, F., Reeve, J., Wentzel, K., & García, O. (2015). When adolescents with high self-concept lose their engagement in school. *Revista de Psicodidáctica*, *20*(2), 305–320. https://doi.org/10.1387/RevPsicodidact.12671

Verdugo, L., Freire, T., & Sáchez-Sandoval, Y. (2018). Understanding the connections between self-perceptions and future expectations: A study with Spanish and Portuguese early adolescents. *Revista de Psicodidáctica*, *23*(1), 39–47. https://doi.org/10.1016/j.psicoe.2017.07.001

Wigelsworth, M., Lendrum, A., Oldfield, J., Scott, A., Bokkel, T. I., Tate, K., & Emery, C. (2016). The impact of trial stage, developer involvement and international transferability on universal social and emotional learning programme outcomes: A meta-analysis. *Cambridge Journal of Education*, *46*(3), 347–376. https://doi.org/10.1080/0305764X.2016.1195791

Zych, I., Beltrán-Catalán, M., Ortega-Ruíz, R., & Llorent, V. J. (2018). Social and emotional competencies in adolescents involved in different bullying and cyberbullying roles. *Revista de Psicodidáctica*, *23*(2), 86–93. https://doi.org/10.1016/j.psicoe.2017.12.001

Zych, I., Ortega-Ruiz, R., Muñoz-Morales, R., & Llorent, V. J. (2018). Dimensions and psychometric properties of the Social and Emotional Competencies Questionnaire (SEC-Q) in youth and adolescents. *Revista Latinoamericana de Psicología*, *50*(2), 98–106. https://doi.org/10.14349/rlp.2018.v50.n2