

# Attending (or not) after-school programs during the COVID-19 pandemic: What happens to children's social skills and behavior problems?

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## ABSTRACT

The demand for After-School Programs (ASP) has increased in the last decades, mainly related to the reduced availability of the family to take care of children in the after-school period. This study aimed to compare two groups of children who attend (ASP group) or not ASP (comparison group), from the first and second grade, regarding their social skills and behavior problems. Teachers assessed 120 children (half by group) across three times (one before and two during the COVID-19 pandemic). A pattern of ASP attendance was determined, in order to understand whether ASP attendance influences social skills and behavior problems. The results indicated that children who attended ASP showed higher levels of self-control and assertion skills. Higher levels of hyperactivity were reported by teachers for both groups when children came back to school after the first COVID-19 lockdown. Parents enrolled their children in ASP mostly for safety; and ASP attendance had a positive effect on social skills and negative on behavior problems. The implications of attending ASP associated to a more positive child development are discussed.

## 1. Introduction

During the last few decades there has been a significant increase in the number of children attending After-School Programs (ASP). The increased demand for ASP is linked to historical, political and economic factors, such as changes in educational background (compulsory education for children), in labor market (increased maternal employment, with more working families demanding after-school support for their children) and in neighborhood (which become unsafe places to play without supervision) (Durlak et al., 2010a; Frazier et al., 2019). On the one hand, these programs are, nowadays, a social solution to the families and children's needs, once the society progress led to families less available to take care/entertain the children in their extra-school time (Sequeira & Pereira, 2004). On the other hand, one of the main purposes often endorsed to ASP is a bond between knowledge acquired in the formal school context with follow-up in homework task (Leos-Urbel, 2015; Santos, 2011). This justifies the role commonly associated to ASP as safe and supervised places for homework assistance and play (Durlak et al., 2010a; Frazier et al., 2019).

In the United States (US), ASP have several goals, including improving school achievement, promoting positive development, preventing delinquency/substance use, and alleviating other behavioral health challenges (Kremer et al., 2015). According to the *Afterschool Alliance* (2012), children who attend ASP in the US are mostly from economically disadvantaged environments. In this sense, Little et al. (2008) consider that ASP primarily supports families in several ways: keeping children safe while their parents work, providing services with developmental benefits, and supporting at school level. ASP may also offer a varied set of activities such as: academic enrichment, tutoring, mentoring, homework support, arts (e.g., music, drama), technology, science, reading, math, and personal/social development (Durlak et al., 2010a; Little et al., 2008). In this field, Sanderson and Richards (2010) identified the three major reasons pointed by parents to enroll their children in an ASP: to learn new things, to get homework support, and to use time productively. According to parents' perspective, the top five activities for an ideal ASP were computers, tutoring, music, arts and crafts, and mentoring (Sanderson & Richards, 2010). ASP are thus considered essential programs to mitigate risk and increase the

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resilience of young people living in urban communities (Frazier et al., 2019) and seen as a helping support structure (Evans et al., 2021).

In Portugal (where the present study was conducted), this reality is quite different. According to the Norm II of the Normative Order 96/89, of 21 October, three specific goals are defined for Portuguese ASP: “(a) to provide children with experiences that contribute to their growth as a person, satisfying their physical, intellectual, affective and social needs; (b) to create an environment favorable to the development of each child’s personality (...); (c) to promote the interrelationship between family-school/community-ASP, for an increased value, use and recovery of all the environment resources” (Diário da República, 1989, p. 4649). As such, in Portugal, ASP are intended to create conditions that guarantee adequate answers to children and young people concerning leisure and free time, having a central role in the personal development and in children’s sociability/entertainment (Sequeira & Pereira, 2004). Araújo (2004) summarized these points by referring to the ASP as serving caregiving (with the purpose of safeguarding the child) and pedagogical (seeking to the whole development of the children in order to prepare them for the school world) needs of children and families.

Associated with the increased demand for ASP, a growing need to carry out research in this field was evidenced, in order to understand the role of these programs in promoting the holistic development of the children, or as a protective factor for more disadvantaged families (Mahatmya & Lohman, 2011; Sequeira & Pereira, 2004; Vandell et al., 2022; Wade, 2015). Most of this research is based on the theory that supports the role of ASP as possible agents of positive development, whether based on ecological models (e.g., Bronfenbrenner & Moris, 2006, cited in Wade, 2015) which emphasize that ASP can have a powerful effect on several developmental factors and that, these same effects, can be extended to other settings; or on dynamic models (e.g., Eccles & Gootman, 2002, cited in Wade, 2015) which highlight that positive development is more likely to occur if there is a good fit between the child and the surrounding community (such as ASP). In order to elucidate how bio-ecological and dynamic models can predict the influence of ASP on children and young people’s development, Durlak et al. (2010a, p. 287) proposed a specific model that highlights that the short-term and long-term outcomes in young people (e.g., cognitive, social), associated with the frequency of ASP, depend on several factors. These include the characteristics of the child (e.g., age, gender), the systems in which they interact (e.g., family, peers) and several characteristics associated with ASP (e.g., organization, content) and their participation (e.g., attendance, involvement), without disregarding the effect of time variable. Within this framework, several variables have been analyzed with a potential impact on the results obtained in the research carried out on ASP, such as the child’s gender, the ASP attendance and the families’ socioeconomic status (Wade, 2015).

However, the COVID-19 pandemic impacted families’ daily lives at several levels (e.g., social, economic, mental health, wellbeing) (Caldwell et al., 2022). Furthermore, a deep impact was evidenced in children’s lives once its restrictions affected school experiences and many ASP closed their doors during the COVID-19 pandemic or had to found innovative solutions, such as virtual services (Evans et al., 2021; Morata et al., 2022). By April 2020, 192 countries, including Portugal (where the present study was conducted) closed schools (UNESCO, 2020), as well as ASP. Several studies related to ASP topic were conducted during COVID-19 pandemic, such as to understand the perception of youth about virtual ASP services (e.g., Evans et al., 2021), to explore the role of ASP during lockdown (e.g., Morata et al., 2022), or to assess caregivers’ perception on children’s cognitive, social and emotional health during the second wave of COVID-19 (Caldwell et al., 2022). None of these studies explored children’s social skills and behavior problems before and during COVID-19 pandemic, whether or not they attend ASP.

### 1.1. Social-emotional development and ASP: Research evidence

The importance and effectiveness of the ASP in child development

have been recognized in the last 20 years. In this field, the assessment of ASP success has been a challenging task often guided by a greater acknowledgement of the importance of social and emotional skills that young people may develop while attending these programs (Devaney, 2015; Durlak et al., 2010a; Wade, 2015). However, research findings have been mixed, with some studies corroborating the contribution of ASP to a positive development, while others did not (Cross et al., 2010; Grogan et al., 2014; Leos-Urbel, 2015; Wade 2015).

Some research suggested that children from socially disadvantaged families particularly benefit from attending ASP comparing to a comparison group, with an identified decrease in attention problems and an increase in self-esteem, leadership and social skills according to the self, parents and teachers’ perspectives (Mason & Chuang, 2001). Also Little et al. (2008) identified several positive outcomes associated to ASP attendance, such as a decrease in behavior problems, lower levels of depression and anxiety, an increase in social and communication skills and in the relationships with others (peers, parents and teachers), and in self-confidence, self-esteem and self-efficacy. Grogan et al. (2014), in a longitudinal study, found positive changes in social skills of elementary school children engaged in ASP across the school year. Wade (2015) developed a longitudinal study to understand whether APS predicted social-emotional functioning in grades 1–5. As in the present study, the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) was used to assess social skills. Results indicated that children’s positive experiences in ASP predicted higher levels of social-emotional functioning, being positively associated with assertiveness and self-control skills (for boys only) and negatively associated with externalizing behavior problems (Wade, 2015). Kayalar (2016) developed a study focused on teachers’ perspectives (through a semi-structured interview) looking for the benefits of ASP associated to social-emotional learning. Teachers reported that ASP allowed children to develop tools for problem solving, socialization and social-emotional development. Specifically, the opportunities available in these programs can help students to develop self-confidence, self-regulation, self-esteem, responsibility, problem-solving and decision-making skills and emotional and social learning skills (Kayalar, 2016). However, Gottfredson et al. (2010) studied the effects of attending an ASP, with an experimental (ASP) and a control (extracurricular activities) group, in which no differences were found between the two groups in measures of behavior problems or social competence.

The issue of ASP quality has also been explored with regard to its relationship with social-emotional development. In this field, Durlak et al. (2010a) pointed out that participation in ASP was significantly associated with a reduction in behavior problems and an increase in school bonding and prosocial behavior for high-quality programs. Furthermore, in a meta-analysis conducted to assess the results achieved in ASP that seek to promote personal and social skills of young people, there were significant increases in young people’s self-perception, bonding with school, positive social behaviors, school grades and performance test results, and a significant reduction in behavior problems (Durlak et al., 2010b). Shernoff (2010) analyzed whether the quality of experience in ASP affected social competence, with adolescents showing higher levels of social competence when attending ASP compared to their peers who did not attend, with enrollment in ASP activities predicting higher social competence. Devaney (2015) tried to understand whether ASP contributed to the development of social and emotional skills in young people. The author found that few studies have rigorously examined the impact of ASP on social and emotional competence, and recognized that, despite considering that ASP had a positive role in social-emotional development, the growth does not happen in any program or for any level of attendance, since the quality of the program and the level of participation are two key variables to achieve positive outcomes (Devaney, 2015). Recently, Frazier et al. (2021) explored the association between child and parents’ perception of ASP quality and children’s social skills and behavior problems reported by ASP staff, using several hierarchical linear models. Results indicated that higher quality programs perceived by parents and children are related to more

social skills and less behavior problems pointed by the staff (Frazier et al., 2021). However, despite the relevance and the growing interest on the topic of ASP quality, several questions remain unanswered (Vandell et al., 2022).

In Portugal, some studies have been conducted in the last two decades, but not focused on social-emotional benefits of attending ASP. Araújo (2004) explored the activities provided to children in two ASP with distinct organization and pedagogic approaches. Sequeira and Pereira (2004) developed a study to understand whether ASP activities meet children’s interests and needs. Bulhões (2018) analyzed the educational and social-cultural potential of six ASP in the Azores (where the present study took place), recognizing the relationship between ASP, school and family as essential and a merging element for the development of the child, through well-being, safety and monitoring.

From the literature review it is evident that the research carried on the ASP has not adequately addressed several methodological issues and these effects on specific outcomes. Regarding the methodological challenges, Leos-Urbel (2015) highlighted the non-experimental nature of most of the research carried out, a possible bias linked to the control group (commonly composed by children who do not attend ASP but may attend several extra-school activities), and the use of academic results as a key outcome instead of other variables. For the outcomes issues, empirical evidence points to inconsistent/mixed results in the effect of ASP attendance on social-emotional development. There are studies which emphasize that children who attend ASP experience greater opportunities to practice their social skills with peers and adults, which contributes to a more positive development; however, other research does not identify such an effect or even find negative effects associated with attendance (Cross et al., 2010; Grogan et al., 2014; Leos-Urbel, 2015; Wade 2015). In addition, most of the studies focused on social-emotional development comparing groups of children have taken place in the US, while only a small number have been done in Portugal, which reinforces the relevance of the present study.

1.2. Current study

The main purpose of the present study is to understand what happened to the social skills and behavior problems of children during the COVID-19 pandemic whether they attend (or not) ASP, based on teachers’ perception. Furthermore, a pattern for ASP attendance will be determined based on parents’ perception about reasons to enroll their children in ASP and activities they believe children are performing there. To complete this ASP picture, the influence of parents’ education level and ASP attendance (e.g., dosage) in social skills and behavior problems will be explored. This study includes some innovative aspects in the field of ASP studies. Firstly, it will use two same-sized groups (ASP and comparison) paired according to several variables (e.g., age, gender, school grade, residence area, parental level of education). Second, its longitudinal nature, with three assessment times, adds value for this study. Third, the first assessment time took place before and the others two during the COVID-19 pandemic, which provides a unique opportunity to study social skills and behavior problems in such a specific period. Lastly, the study was conducted in the Autonomous Region of the Azores (ARA), one of the two Portuguese archipelagos (Azores and Madeira), with few studies in the field. The Azores are among the poorest regions of Portugal and the one with the greatest disparity in income distribution. The at-risk-of-poverty rate, in 2020, was 19.8% at the national level, and 21.9% for the Azores, with a poverty rate of 29.4% for households with children (Instituto Nacional de Estatística [National Office of Statistics], 2021). Furthermore, in 2020, the two municipalities considered in this study were among those with the most beneficiaries of Social Security (e.g., Social Integration Benefit): Ribeira Grande with 20.4% and Ponta Delgada with 10.4%, while the national average was 2.9% (Fundação Francisco Manuel dos Santos, 2021). Three research questions were established:

- (a) Are there differences in the social skills of children who attend ASP and their peers who do not across the three assessment times?
- (b) Are there differences in the behavior problems of children who attend ASP and their peers who do not across the three assessment times?
- (c) Does ASP attendance influences children’s social skills and behavior problems?

2. Methods

2.1. Sample

The initial sample (first assessment time) involved a total of 120 children attending the first and second grade of elementary school. Those 120 children were allocated into two groups: a group of 60 children who attended ASP (ASP group) and a group of 60 children who did not attend ASP (comparison group), matched for age, gender, school grade, residence area and parental level of education. Of the 120 children, 60 were female and 60 were male, equally distributed between the two groups, aged between 6 and 8 years ( $M = 6.53, SD = 0.62$ ). In the ASP group, 53.3% were 6 years old, 41.7% 7 years old and 5.0% 8 years old ( $M = 6.52, SD = 0.60$ ). In the comparison group ( $M = 6.53, SD = 0.65$ ), there was a very close percentage of children aged 6 (48.3%) and 7 years old (46.7%), with an identical number of children aged 8 years old to the ASP group. As for residence, 58.3% of the children lived in Ponta Delgada and 41.7% in Ribeira Grande. As previously defined, 50.0% of the children attended the first grade and 50.0% the second grade of elementary school (cf. Table 1). Groups were totally equivalent for gender, residence area and school grade. The proportion of children in each age (6, 7 and 8 years-old) were not statistically different for the two groups,  $\chi^2(2, N = 120) = 0.317, p = .853$ .

Table 2 includes the children’s families’ characteristics. Fathers’ age ranged from 23 to 65 years ( $M = 37.61$  years,  $SD = 7.30$ ), and from 22 to 49 years for the mothers ( $M = 34.65$  years,  $SD = 6.50$ ). Most of the fathers (55.8%) and mothers (50.8%) of the total sample were between 35 and 49 years old. This age group was also the most common for both groups under study, with the exception of mothers in the ASP group, in which 51.7% were between 20 and 34 years old. Regarding marital status, most of the parents were married/cohabitating (83.2% and 84.4% for fathers and mothers, respectively for the total sample). The majority of the parents completed less than high school education (more than 60% of the sample) and few of them had a college degree (around 3–10%). Most of the parents were employed, 82.5% of the fathers and 72.5% of the mothers (for the total sample). The mothers were the most available informant to participate in the study and completed the questionnaires (84.9%, compared to 14.3% for the father and 0.8% for a grandmother).

Table 1  
Child characteristics.

Variable	Total sample (N = 120) n(%)	ASP group (n = 60) n(%)	Comparison group (n = 60) n(%)
Gender			
Female	60(50.0)	30(50.0)	30(50.0)
Male	60(50.0)	30(50.0)	30(50.0)
Age			
6	61(50.8)	32(53.3)	29(48.3)
7	53(44.2)	25(41.7)	28(46.7)
8	6(5.0)	3(5.0)	3(5.0)
Residence area			
Ponta Delgada	70(58.3)	35(58.3)	35(58.3)
Ribeira Grande	50(41.7)	25(41.7)	25(41.7)
School Grade			
1st Grade	60(50.0)	30(50.0)	30(50.0)
2nd Grade	60(50.0)	30(50.0)	30(50.0)

**Table 2**  
Family characteristics.

Variable	Total Sample		ASP Group		Comparison Group	
	Father	Mother	Father	Mother	Father	Mother
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Age						
20–34 years	40(33.3)	58(48.3)	20(33.3)	31(51.7)	20(33.3)	27(45.0)
35–49 years	67(55.8)	61(50.8)	34(56.7)	29(48.3)	33(55.0)	32(53.3)
≥ 50 years	7(5.8)	–	2(3.3)	–	5(8.3)	–
Marital Status						
Single	7(5.8)	11(9.2)	3(5.0)	5(8.3)	4(6.7)	6(10.0)
Married/Cohabiting	100(83.2)	101(84.4)	51(85.0)	52(86.7)	49(81.7)	49(81.7)
Divorced	6(5.0)	7(5.8)	2(3.3)	3(5.0)	4(6.7)	4(6.7)
Education						
Less than High School	80(66.6)	78(65.0)	40(66.6)	41(68.3)	40(66.6)	37(61.7)
High School	28(23.3)	29(24.2)	14(23.3)	13(21.7)	14(23.3)	16(26.7)
College	4(3.3)	11(9.2)	2(3.3)	6(10.0)	2(3.3)	5(8.3)
Employment Status						
Working	99(82.5)	87(72.5)	51(85.0)	44(73.3)	48(80.0)	43(71.7)
Domestic	2(1.7)	19(15.8)	–	10(16.7)	2(3.3)	9(15.0)
Retired	2(1.7)	1(0.8)	1(1.7)	–	1(1.7)	1(1.7)
Unemployed	9(7.5)	6(5.0)	4(6.7)	3(5.0)	5(8.3)	3(5.0)
Student	–	3(2.5)	–	3(5.0)	–	–

Note. Missings for age = 5.0% father and 0.8% mother; Missings for marital status = 5.8% father and 0.8% mother; Missings for education = 6.7% father and 1.7% mother; Missings for employment status = 6.7% father and 3.3% mother.

Of the 36 teachers who participated in the study, 83.3% were female and 16.7% male. Most of them were full time teachers (91.7%), while the remainder working on part-time contract (8.3%).

## 2.2. Measures

### 2.2.1. Sociodemographic questionnaire

This questionnaire was developed for the research project “ASP as a Context to Promote Development and Facilitate School Success” (Palos et al., 2019) and contains 42 questions divided into three sections, completed by the parents. The first section allows the collection of child’s data (e.g., age, gender, school grade, ASP attendance). The second section aims to describe the household (e.g., household members, age and education of siblings, parental level of education). The third section was composed of a set of questions designed to describe the parents’ perspective on ASP attendance and activities. For the present study, based on this questionnaire, a second version was developed for the comparison group. The main difference was on the third section, which intended to collect information about the extra-school activities attended by the children (e.g., type of activities and pattern of attendance).

### 2.2.2. Social Skills Rating System (SSRS)

The SSRS (Gresham & Elliott, 1990) is a rating scale designed to assess the social skills, behavior problems and academic competence of school-age children. In the present study, the Portuguese version of the SSRS (Lemos & Menezes, 2002) was used. It consists of 30 items to assess social skills, 18 items to assess behavior problems and six items for academic competence (not used in the present study). The Social Skills scale assesses three kinds of positive behaviors: Cooperation (10 items) which encompasses helping, sharing, and norm-complying behaviors; Assertion (10 items) that assesses behaviors in which the student takes initiative such as asking for information or introducing himself; and Self-Control (10 items) that measures reactions to conflicting situations, making commitments and waiting for his turn. The Problem Behaviors scale assesses three kinds of behavioral problems: Externalizing Problems (six items) such as physical or verbal aggression, and low behavior control; Internalizing Problems (six items) such as anxiety, sadness, and social withdrawal; and Hyperactivity (six items) such as restlessness, excitement, and impulsive reactions. Each item is rated on a three-level likert scale (“Never”, “Sometimes” and “Often”), in reference to the last or

the last two months. For the Portuguese version, evidence of reliability (Cronbach alpha) and validity (exploratory factor analysis) studies were performed (Lemos & Menezes, 2002). Values for internal consistency achieved in the present study (Cronbach alpha coefficient between 0.81 and 0.98) were very similar to the ones from the Portuguese adaptation study (Cronbach Alpha coefficient between 0.83 and 0.96; Lemos & Menezes, 2002).

## 2.3. Procedure

The present study is part of a larger project (Palos et al., 2021) submitted and approved by the Ethics Committee of the University of the Azores (Process 39/2019). The sample of the present study was collected on São Miguel island, as its population is representative of the archipelago of the Azores (composed by nine island, with half of the population living in São Miguel island). The following inclusion criteria were defined: a) children attending the first or second grade, b) attending ASP (ASP group) or not (comparison group), and c) informant consent document signed by the parents (or legal guardian).

The initial research project included two assessment times (beginning and end of the 2019–2020 school year). However, the COVID-19 pandemic made it impossible to carry out the second assessment time. Two new assessment times were added to the baseline (beginning of the 2019–2020 school year), with each child being assessed three times (T1: beginning of the school year 2019–2020, T2: beginning of the school year 2020–2021, and T3: end of the school year 2020–2021).

Once group characteristics were delineated, teachers of the 120 children were invited to complete the SSRS. Despite accepting to participate, seven teachers from the ASP group declined to complete the SSRS at baseline (children were assessed with other instruments from the larger project, but excluded from the analysis conducted with the SSRS which remains with 113 children). The pandemic caused a high experimental mortality in the present study. From T1 to T2 there were 39 dropouts (e.g., denied access to schools and ASP due to COVID-19 restrictions, withdrawal from participation, school relocation), with 74 participating children at T2. Seven other children withdraw from T2 to T3 ( $n = 67$  children at T3). Based on the proportions’ test, no statistically significant differences were found for marital status, fathers and mothers’ education level and parents’ employment status for children who dropout and those who did not, indicating that the validity of the

study wasn't compromised.

### 2.3.1. ASP group

Children of the ASP group were selected from a larger ASP study database (Palos et al., 2019), with children from seven islands from the ARA ( $N = 1,537$  children). As it was determined that the sample would be collected on São Miguel island, all children from the other islands were removed from the database. Then, only children attending ASP located on two main municipalities of Ponta Delgada ( $n = 400$ ) and Ribeira Grande ( $n = 263$ ) remained in the database. All children who attended different school grades than the ones defined were removed. From this database refinement process, 224 children were left distributed among 26 ASP (17 in Ponta Delgada and nine in Ribeira Grande). Only ASP having 10 or more children were included in the study, which resulted in five from Ponta Delgada and four from Ribeira Grande. Of the remaining children, 60 were selected for the ASP group: 30 for the first grade and 30 for the second grade.

### 2.3.2. Comparison group

After selecting the ASP group, the schools attended by these children were used to select a matched comparison group. A request for authorization to participate was sent to the Principals of the Executive Boards of Ponta Delgada (six schools) and Ribeira Grande (six schools). Once the authorizations were obtained, teachers were invited to participate. Thus, an informed consent document was given to each teachers and they were asked to identify children from their classrooms who did not attend ASP (according to the inclusion criterion and to the pairing variables). An envelope was sent to the parents with an informed consent document to be signed and a sociodemographic questionnaire to be completed and returned to the teacher. A sample of 60 children (attending first and second grades) was selected to match with the ASP group.

## 2.4. Data analysis

Data analyses were performed using the IBM SPSS Statistics 27 package. Several mixed repeated measures ANOVA were performed, with an independent factor (group: ASP and comparison) and a dependent factor (repeated measures: three assessment times) to compare the social skills and behavior problems for both groups of children. Several assumptions were checked before conducting the analyses (e.g., outliers, normality of the distribution of the dependent variable with Shapiro-Wilk test and the QQ plots graphs, homogeneity of variances using Levene's test, specificity with Mauchly's sphericity test). Effect size was estimated through the partial eta-square ( $\eta^2$ ) and interpreted according to Cohen's guidelines (1988): 0.01 = small effect size, 0.06 = medium effect size, and 0.14 = large effect size. Percentages were used to analyze the pattern of ASP attendance. To analyze whether parents' educational

level and ASP attendance influences children's social skills and behavior problems, regression models and path analysis were used. The assumptions for the use of these regression models were verified, such as the normal distribution of the residuals (based on Kolmogorov-Smirnov test with Lilliefors correction and Normal Probability Plot), the independence of residuals (Durbin & Watson, 1971) and the diagnosis of the multicollinearity of the independent variables (based on the Variance Inflation Factor - VIF).

## 3. Results

### 3.1. Children's social skills

In this first set of results, comparative analyzes between the two groups of children (ASP and Comparison) in the three assessment times are presented for the four scores of the SSRS Social Skills scale completed by teachers: Self-Control, Cooperation, Assertion and Total Social Skills. As noted from Fig. 1, the results of the mixed repeated measures ANOVA showed that there was a significant interaction effect between children who attend or not ASP and time for the Self-Control subscale,  $F(2, 130) = 4.782, p = .010, \eta^2 = 0.07$  (medium effect size). Descriptive statistics indicated that children attending ASP were rated by their teachers as having higher levels of Self-Control at the third assessment time ( $M = 16.27, SD = 4.80$ ) compared to the first ( $M = 15.30, SD = 5.04$ ) and second assessment time ( $M = 15.13, SD = 4.75$ ). Children from the comparison group showed an opposite pattern, with higher result at T1 ( $M = 15.27, SD = 4.13$ ) compared to T2 ( $M = 14.78, SD = 4.14$ ) and T3 ( $M = 13.84, SD = 4.00$ ) (see Table 3). The difference between children who attend the ASP and the comparison group is more evident at T3. There was no main effect for the group nor for time for the Self-Control score. For the Cooperation subscale, there were no interaction effect, neither a main group effect. There was a significant main effect for time,  $F(2, 130) = 3.198, p = .044, \eta^2 = 0.05$  (small effect size), with a decrease of children's cooperation from T1 to T2. Thus, children who attend ASP were rated by their teachers with higher levels of Cooperation at T1 ( $M = 15.57, SD = 3.74$ ) than in T2 ( $M = 15.03, SD = 2.98$ ) or T3 ( $M = 14.80, SD = 4.05$ ). Children in the comparison group showed a similar pattern, with higher results at T1 ( $M = 15.65, SD = 3.47$ ) compared to T2 ( $M = 14.38, SD = 3.96$ ) and slightly increasing at T3 ( $M = 14.59, SD = 4.35$ ) (see Table 3). The results for the Assertion subscale show that there was no interaction effect, nor a main effect for time. However, there was a significant main group effect,  $F(1, 65) = 8.783, p = .004, \eta^2 = 0.12$  (medium effect size), with children who attended ASP showing higher results compared to children who do not attend at all the three assessment times (see Table 3). Finally, for the total score of the Social Skills scale (sum of the results of the three subscales), there wasn't any interaction or main effect.

### 3.2. Children's behavior problems

Table 4 presents the results for the SSRS Behavior Problems scale: Externalizing Problems, Internalizing Problems, Hyperactivity and Total Behavior Problems. The results of the mixed repeated measures ANOVA showed that there was no interaction or any main effect for the Externalizing and Internalizing Problems. For the Hyperactivity subscale there was no interaction effect, nor main effect for the group. There was a main effect for time,  $F(2, 130) = 4.018, p = .020, \eta^2 = 0.06$  (medium effect size), with the same pattern of results for both groups across time. Children in the ASP group were rated as exhibiting less hyperactive behaviors at T1 ( $M = 2.57, SD = 2.69$ ), increasing at T2 ( $M = 3.30, SD = 2.76$ ) and decreasing at T3 ( $M = 2.47, SD = 2.65$ ). A similar pattern of results was found for children in the comparison group, with lower Hyperactivity scores at T1 ( $M = 2.57, SD = 2.65$ ), increasing at T2 ( $M = 3.05, SD = 2.68$ ) and reducing at T3 ( $M = 2.59, SD = 2.62$ ). It should be noted that it was at T2 that the average scores of Hyperactivity were higher for both groups (see Table 4). Lastly, for the Behavior Problems

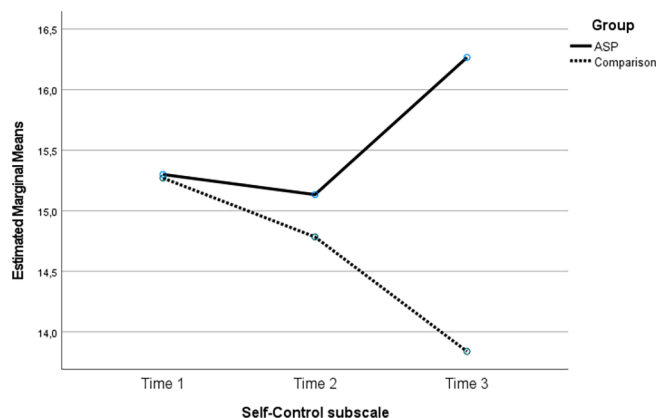


Fig. 1. Plot of the interaction effect for the self-control subscale.

**Table 3**  
Means, standard deviations, and mixed ANOVA statistics: Social skills scores ASP group vs. comparison group.

Score/Time	ASP Group		Comparison Group		Effect	F ratio	df	$\eta^2$
	M	SD	M	SD				
Self-Control								
T1	15.30	5.04	15.27	4.13				
T2	15.13	4.75	14.78	4.14	G X T	4.782	2,130	0.07
T3	16.27	4.80	13.84	4.00				
Cooperation								
T1	15.57	3.74	15.65	3.47				
T2	15.03	2.98	14.38	3.96	T	3.198	2,130	0.05
T3	14.80	4.05	14.59	4.35				
Assertion								
T1	16.83	4.08	14.38	4.69				
T2	16.80	3.37	14.16	4.19	G	8.783	1,65	0.12
T3	16.67	4.39	13.89	4.11				
Total Social Skills								
T1	47.70	11.18	45.30	10.66				
T2	46.97	9.29	43.32	9.71	-	-	-	-
T3	47.73	12.32	42.32	9.35				

Note. T1: Time 1 ( $n_{ASP\ group} = 53, n_{Comparison\ group} = 60$ ); T2: Time 2 ( $n_{ASP\ group} = 33, n_{Comparison\ group} = 41$ ); T3: Time 3 ( $n_{ASP\ group} = 30, n_{Comparison\ group} = 37$ ); G X T = Group X Time interaction effect; T = Time main effect; G = Group main effect.

**Table 4**  
Means, standard deviations, and mixed ANOVA statistics: Behavior problems scores ASP group vs. comparison group.

Score/Time	ASP Group		Comparison Group		Effect	F ratio	df	$\eta^2$
	M	SD	M	SD				
Externalizing Problems								
T1	2.13	3.04	1.76	2.51				
T2	2.17	3.60	2.57	3.71	-	-	-	-
T3	2.13	3.30	2.59	3.66				
Internalizing Problems								
T1	1.37	1.90	2.46	2.12				
T2	2.33	2.20	2.27	2.10	-	-	-	-
T3	1.63	1.88	2.16	2.21				
Hyperactivity								
T1	2.57	2.69	2.57	2.65				
T2	3.30	2.76	3.05	2.68	T	4.018	2,130	0.06
T3	2.47	2.65	2.59	2.62				
Total Behavior Problems								
T1	6.07	6.88	6.78	5.94				
T2	7.80	7.20	7.89	6.55	G	88.087	1,65	0.58
T3	6.23	6.62	7.35	7.01	T	3.135	2,130	0.05

Note. T1: Time 1 ( $n_{ASP\ group} = 53, n_{Comparison\ group} = 60$ ); T2: Time 2 ( $n_{ASP\ group} = 33, n_{Comparison\ group} = 41$ ); T3: Time 3 ( $n_{ASP\ group} = 30, n_{Comparison\ group} = 37$ ); T = Time main effect; G = Group main effect.

total score, despite no interaction effect, there was a main group effect,  $F(1, 65) = 88.087, p = .000, \eta^2 = 0.58$  (large effect size), with children in the comparison group being rated by their teachers as more problematic compared to the ASP group. In addition, there was also a main effect for time,  $F(2, 130) = 3.135, p = .047, \eta^2 = 0.05$  (small effect size), revealing an increase from T1 to T2 and a reduction at T3. Descriptive statistics showed that children in the ASP group were viewed by their teachers with fewer behavior problems at T1 ( $M = 6.07, SD = 6.88$ ), increasing at T2 ( $M = 7.80, SD = 7.20$ ) and decreasing at T3 ( $M = 6.23, SD = 6.62$ ). Children in the comparison group showed a similar pattern of results, although with higher values (T1:  $M = 6.78, SD = 5.94$ ), which increased at T2 ( $M = 7.89, SD = 6.55$ ) and decreased at T3 ( $M = 7.35, SD = 7.01$ ) (see Table 4). Children in the comparison group had more behavior problems at all the assessment times compared to the ASP group. It should also be noted that it was at T2 that the average behavior problems score was higher for both groups of children.

3.3. ASP attendance pattern and its influence on social skills and behavior problems

This last set of analyses focused only on the ASP group ( $n = 60$ ). Of those children, 70.0% ( $n = 42$ ) attended those programs for less than 3

years and 30.0% ( $n = 18$ ) for more than 3 years. The majority (91.7%,  $n = 55$ ) attended ASP 5 days/week and the remaining 8.3% between 2 and 4 days. Most of the children spent at least 3 h/day (73.4%,  $n = 44$ ) there.

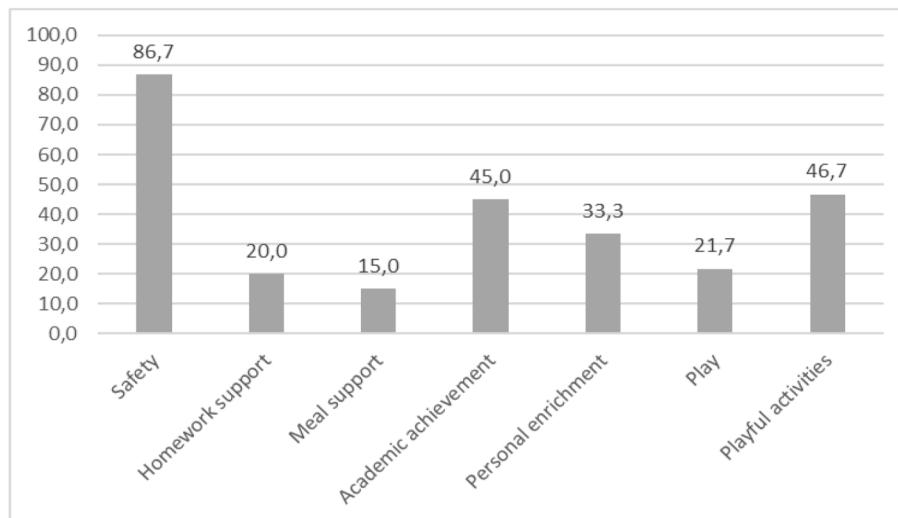
As noted from Fig. 2A, safety (86.7%), playful activities guided by professionals (46.7%) and improving their school achievement (45.0%) were the main reason for parents enrolling their children in ASP. Play (21.7%), homework support (20.0%) and assistance with meals (15.0%) were the least selected motives by parents.

Parents indicated the following activities as the most performed by children in ASP: plastic expression (90.0%, such as painting and drawing), playing (86.7%), talking with friends (85.0%), and games (81.7%). According to Fig. 2B, using the computer (25.0%), performing scientific experiments (28.3%) and reading (30.0%) were the activities perceived by parents as least established in ASP.

Results for the regression model are presented on Table 5, to check if variables associated to ASP attendance and parents' educational level explains Social Skills and Behavior Problems scores assessed by teachers at baseline. Variables ASP attendance and father's education level didn't reach statistically significant regression coefficients (see Table 5).

Then, a Path Analysis recursive model was used, as all causal relations are unidirectional, to evaluate the effects of each of the independent variables (time ASP, dosage and mother education) on the

A)



B)

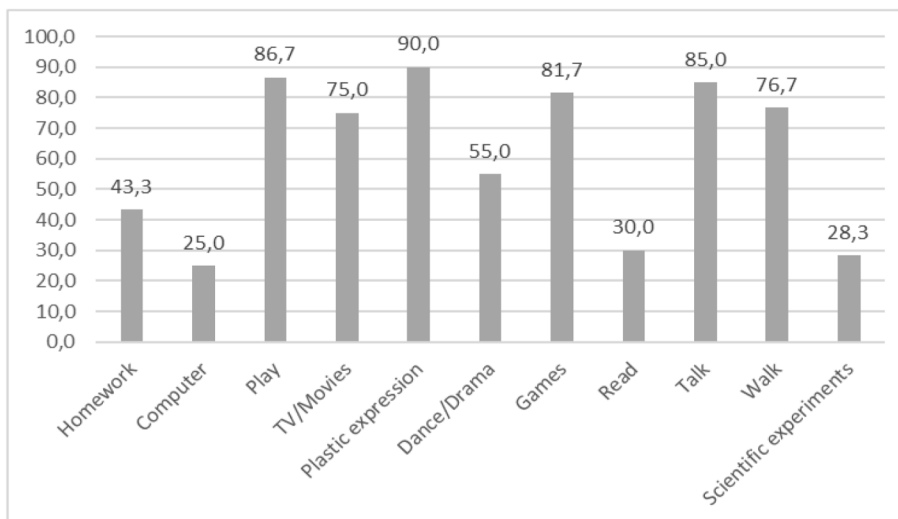


Fig. 2. ASP attendance pattern according to parents' perspective: Reasons to attend ASP (%) (A), activities carried out in ASP (%) (B).

Table 5  
Regression model.

Score	Coefficient	SEM	t	p
<b>Social Skills</b>				
Intercept	43.050	14.323	3.006	0.004
Time ASP	7.776	3.4398	2.261	0.029
Attendance	-2.035	5.802	-0.351	0.727
Dosage	-6.924	3.393	-2.041	0.047
Mother Education	4.709	2.795	1.685	0.099
Father Education	0.715	3.584	0.199	0.843
<b>Behavior Problems</b>				
Intercept	12.262	7.313	1.677	0.101
Time ASP	-5.475	1.756	-3.117	0.003
Attendance	0.502	2.962	0.170	0.866
Dosage	3.185	1.732	1.839	0.073
Mother Education	-3.982	1.427	-2.790	0.008
Father Education	0.514	1.830	0.281	0.780

dependent variables (Social Skills and Behavior Problems). Based on the estimation of the trajectory coefficients (standardized regression coefficients), obtained from the regression model after removing the aforementioned non-significant variables, the statistical significance of each of these trajectory coefficients was tested (see Fig. 3). The number of years that children spend in ASP (Time ASP) influenced positively children's Social Skills ( $\beta = 0.263, p = .046$ ) and negatively their Behavior Problems ( $\beta = -0.346, p = .006$ ). With regard to dosage, the increase in the number of hours/day of ASP attendance evidenced a negative effect on Social Skills ( $\beta = -0.243, p = .065$ ), assuming a significance level of 10%, and there was no statistically significant effect on children's Behavior Problems at baseline. Mothers' educational level had a positive effect on children's Social Skills ( $\beta = 0.244, p = .064$ ), for a significance level of 10% and a negative effect on Behavior Problems ( $\beta = -0.345, p = .007$ ).

#### 4. Discussion

The present study intended to explore what happened to social skills

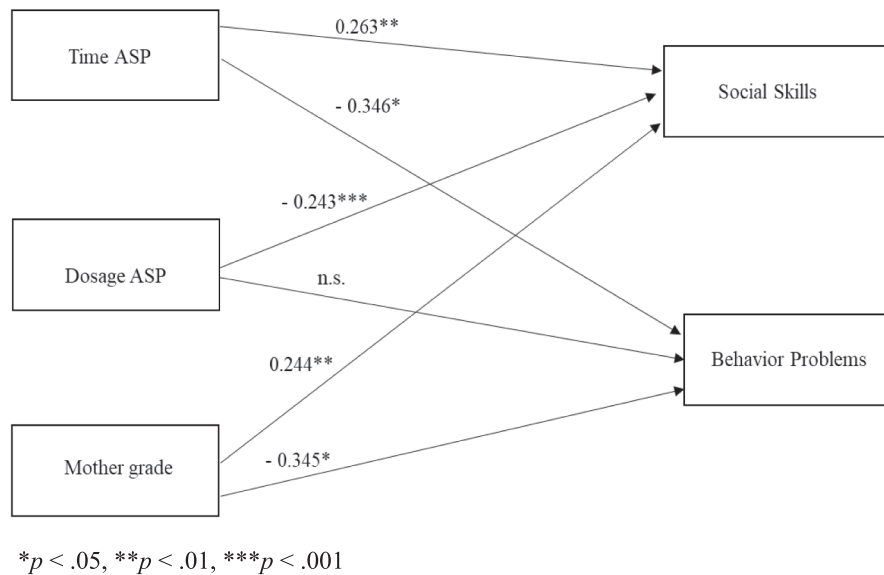


Fig. 3. Path analysis model.

and behavior problems of children during the COVID-19 pandemic whether they attend (or not) ASP, based on teachers' perception across three assessment times. The discussion is organized according to the three research questions defined in order to check if children who attend or not ASP were differently rated by their teachers in social skills and/or behavior problems, and if ASP attendance influences children's social skills and behavior problems. The majority of the sociodemographic questionnaires were completed by the mothers (more than 80%). This reality is very common in research carried out in the field of Psychology, being more the rule than the exception, as the mother is the most available informant to provide data about the children's behavior. As such, also in Portugal, Major and Seabra-Santos (2014) obtained a response rate of 83.4% from mothers in a sample of 1,000 children assessed for their social skills and behavior problems in the family context.

Answering to our first research question, the results of the present study indicated that, overall, there were no differences in social skills whether children attended or not ASP. However, while exploring specific scores (SSRS subscales), interesting results are evidenced, with self-control and assertiveness scores being more favorable to children who attend ASP. It was found that children who attend ASP showed higher results in the third assessment time for Self-Control (with items referring to getting along with different people, controlling temper with adults and peers) and in all of the three assessment times for Assertion (with items such as joining groups, making friends easily) compared to children who do not attend ASP. These results are in line with the study conducted by Wade (2015) who, also using the SSRS with children from the first to fifth grade, found that children's experiences in ASP seemed to promote the development of children's social skills. It is important to note that Wade (2015) used only the SSRS Assertion and Self-Control subscales, the same ones in which differences were identified in the present study. Also, the meta-analysis study of Durlak et al. (2010b) identified an increase in positive social behaviors associated with ASP attendance. These results are in line with the results of Kayalar (2016) in which the teachers indicated that ASP teach children tools for socialization and social-emotional development. It is also possible that the greater opportunity to interact with positive models when attending ASP may be associated with improved social competence (Shernoff, 2010). These positive skills require greater integration and relationship skills with adults and peers, which may be increased when children attend ASP, which allow extended contact with other children and adults, rather than just parents (or other family members) and teachers.

Furthermore, there was a significant reduction in cooperative behaviors identified by the teachers for both groups of children from the first to the second assessment time, possibly related to the well-recognized impact of COVID-19 in school experience and ASP (Evans et al., 2021; Morata et al., 2022). This result may be related to the timing when the second assessment took place (beginning of the 2020–2021 school year), as the children had already gone through the first lockdown and e-learning moment, which unsurprisingly impacted social-emotional functioning. During this period, children stayed at home for a long time (in Portugal from March to September 2020), interrupting their routines and following school activities through e-learning with the support of their parents. In addition, when returning to school, they found previous routines (with classroom management rules, which they did not have at home) associated with new rules to keep social distance and reduce contacts associated with COVID-19 restrictions that may have influenced the teachers' perspective of less cooperation in the classroom, since the Cooperation subscale includes items such as obeying the teacher, easily following transitions between activities and complying with norms. This first set of results emphasized the possible positive contribution of ASP in social-emotional development of children in specific areas, resulting from the type of activities that are offered there (e.g., playing and talking with other children), and not that much at a global level.

The results for our second research question indicated that, for the externalizing/internalizing behavior problems dichotomy, there were no differences in children who attend or not ASP but, at the overall level, results are more promising for children who attend ASP. These results are in line with the studies conducted by Durlak et al. (2010a, 2010b) evidencing that ASP attendance is associated to a reduction in behavior problems, and as one of the positive results related to ASP attendance (Devaney, 2015; Little et al., 2008). As noted from the ASP attendance pattern, children from the ASP group stayed there (mostly) at least 3 h/day, every day of the week, with its routines and rules, that may have contributed to this lower level of problematic behaviors compared to their peers who do not attend ASP. Remarkably, for the Hyperactivity subscale and the total Behavior Problems score both groups of children were evaluated by their teachers as more problematic in the second assessment time, which corresponded with the "back to school moment", after the first lockdown (after long months without a school/ASP routine and more frequent/extensive contact with the teacher and peers) and with the transition in school year (from first to second and from second to third grades), which may have had an impact on the



ability of children to pay attention, not get distracted, or not disrupt classes. This result allows us to specifically emphasize the impact that routine disruption and other structured activities (Morata et al., 2022), lockdown and e-learning may have had on children's behavior. Likewise, these higher hyperactive behaviors may be associated to the lower level of cooperative skills also identified by teachers in the second assessment time. However, an encouraging feature to children's social-emotional development was that the highest scores on the Hyperactivity and Behavior Problems identified in the second assessment time returned to pre-COVID values (baseline: beginning of the 2019–2020 school year) in the third assessment time. This second set of results highlights the unquestionable importance of the school and ASP routines in child's behavior.

Looking to our third research question, most children attended ASP for less than 3 years, which is consistent with the years of school attended by the sample (first and second grades). The daily attendance of ASP (by more than 90% of the children), with almost three quarters of these children staying there for at least 3 h/day, highlights the role of ASP in entertaining children in an extracurricular period that is perceived as a safe and supervised place where children can obtain support while their parents work (Frazier et al., 2019; Leos-Urbel, 2015; Santos, 2011; Sequeira & Pereira, 2004). Parents pointed out that the main reason for enrolling their children in ASP was safety, the opportunity to get involved in leisure activities guided by professionals and to improve their school performance. These results highlight the caregiving goal of ASP (Araújo, 2004), and are in line with research carried out in this field, which emphasized that keeping the children safe while parents work is one of the main roles of ASP (Frazier et al., 2019; Little et al., 2008), and with a previous study also carried out in the Azores (Palos et al., 2019). It is important to note that "safety" was, by far, the most frequently selected option by parents (over 85%). In turn, the second most selected reason, the supervised playful component, reflects the strong leisure component associated to ASP. It is interesting to note that support in carrying out homework is mentioned in the literature as one of the main tasks in ASP (Frazier et al., 2019; Leos-Urbel, 2015; Little et al., 2008; Sanderson & Richards, 2010; Santos, 2011; Sequeira & Pereira, 2004) but, in the present study, few parents seemed to enroll their children in ASP for this reason (only 20%). Meal support was the motive to enroll children in ASP less selected by parents (only 15%), which may be explained as children in Portugal go to ASP after school schedule and usually have lunch at home or at school.

Parents pointed out plastic expression (drawing/painting), playing, and talking as the activities most performed by children in ASP. Once again, the leisure and entertaining component of ASP (e.g., Durlak et al., 2010a; Frazier et al., 2019; Little et al., 2008) was evidenced in this set of results. Also noteworthy is the domain of socialization, personal development and relationships with others (talking with friends and playing with friends) as activities carried out by children in ASP (according to the parents' perspective), consistent with the literature (e.g., Gottfredson et al., 2010; Kayalar, 2016; Little et al., 2008; Shernoff, 2010). Interestingly, activities that request more material/didactic resources (e.g., computers, books) were the least mentioned by parents, which may emphasize the scarcity of these resources in the participating ASP, restraining the availability of such activities. Regardless of the present study did not ask parents about the ideal activities, these results deserve further attention once they aren't in line with three of the five activities that parents expect on an ideal ASP, such as computer, music and arts (Sanderson & Richards, 2010), highlighting a possible discrepancy between what parents may idealize for their children and what they effectively do in ASP due to reduced resources in Portugal. Despite the recognized importance of ASP by political decision-makers (Leos-Urbel, 2015), associated with the role assigned to ASP in child monitoring in the after-school period, there is still a long way to go. A major question rises: should ASP be limited to providing leisure activities such as playing and socializing with other children, or should other skills be explored there, such as reading, digital skills and creativity?

Finally, our last set of results focused on regression analyses evidenced that the number of years of ASP attendance are associated to more social skills (Shernoff, 2010; Wade, 2015) and less behavior problems (Wade, 2015), in line with previous research. However, the dosage had a negative effect on children's social skills and no effect on behavior problems, with the majority of the children enrolled in the present study spending 3 or more hours by day in ASP. This result suggests that the number of hours that children spend by day in ASP deserves further research, since, as evidenced by Delavey (2015), ASP seems to have a positive influence on social-emotional development but not for any attendance pattern. Finally, higher maternal education level influenced positively children's social skills and decreased behavior problems, which emphasizes the importance and effect of mothers highly educated in children's social-emotional development. This result may also reflect the importance of the family included in the social ecologies of the model proposed by Durlak et al. (2010a), but deserves further attention once maternal educational level is not a common variable explored this field. Despite not being assessed in the present study, the ASP quality represents a major factor that deserves to be included in this equation, once it has been evidenced as a predictor of children's social-emotional development (Delavey, 2015; Frazier et al., 2021).

## 5. Strengths, limitations, and future research

The innovative character of this study deserves to be highlighted, as it matched children from the ASP group with a group of children who did not attend ASP (comparison group) according to several variables (e.g., gender, age, school grade). This rigor in the pairing process proved to be a strength of the present study compared to the studies in the field. And, as far as we know, this is the first study developed in Portugal comparing same-sized paired groups of children across time. As such, the longitudinal nature of this study, with three assessment times, partly developed during the COVID-19 pandemic enhanced the contributions of this study.

The first obstacle was related to the delay in getting a positive answer for participation in the study from the school boards and ASP. However, the major limitation was the COVID-19 pandemic. Besides making it impossible to collect the planned second assessment time (May-June 2020), it also led to a high experimental mortality rate (32.5%) from the first to the second assessment time associated to several reasons. Thus, despite the "new perspective" when two assessment times were added to the present study (during the COVID-19 pandemic), it is also important to look carefully to the results and its generalization as the lockdown and the COVID-19 impacts in school/ASP experiences had/have/will have an impact on social-emotional child development and on school achievement. An additional limitation was associated with the sample size, that despite reasonable in the first assessment time decreased for the others two assessment times. Also, the study was conducted in the Azores, an archipelago from Portugal, which geographic localization may limit the generalization of the result. Finally, despite the group matching process (children were matched by age, gender, grade level) represents a strength of this paper, it should be noted that substantial individual differences may still exist in the rate of development impacting the results.

We suggest further studies should be carried out with children who attend ASP using comparison groups, namely studies with larger samples (since about 1/3 of the sample was lost across time in the present study). It will also be relevant to differentiate several comparison groups, as children who do not attend ASP are often enrolled in several extracurricular activities (e.g., tutoring, language courses, sports) that end up masking/biasing the results. Carrying out longitudinal studies, which allow monitoring the pathway in terms of social-emotional and academic development of children who attend (or not) ASP, will allow interesting future research in the field.

## 6. Conclusion

Actions should be taken in order to build/provide a more valued social image of ASP, both in local communities and within families. ASP attendance has an important effect on behavior regulation, since norms and rules established there foster positive social behaviors and reduce problematic behaviors, essential conditions for the social and school integration of children. This issue is especially important for the most disadvantaged families who, given the scarcity of cultural resources, strongly rely on ASP to promote social, personal and broad skills (e.g., responsibility, autonomy), as well as the school monitoring of their children. If ASP is to fulfill an educational role and contribute to the development of diverse skills in children, resources (material and human) must be provided in order to update and diversify the pedagogical materials and activities available to children.

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## CRedit authorship contribution statement

**Sofia de Oliveira Major:** Conceptualization, Methodology, Investigation, Writing – original draft, Writing – review & editing. **Ana Cristina Palos:** Project administration, Writing – review & editing. **Oswaldo Silva:** Methodology.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

The data that has been used is confidential.

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