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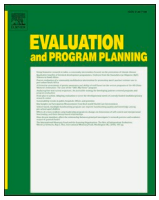

The impact evaluation of short repeated programs: The case of parenting skills programs

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ABSTRACT

In this article, we estimate a series of models to evaluate the effects of a short program in a context where randomization is not feasible but the program follows a cyclical pattern. We will focus empirically on a case study involving parenting skills courses, which have become increasingly popular. In order to evaluate the impact of the program on parents' and children outcomes, we employ two different methods. The first method compares the outcomes of families who have just finished the program with those who are about to start it; the second compares the outcomes of the same families over time. Furthermore, we propose a model to test whether families who enrolled early were systematically different from those who enrolled later. We find beneficial effects of the program on the importance of living in an area that offers opportunities and of having good quality relationships with friends and family; on the level of self-confidence in sharing one's experiences with other parents; and, in general, on the opinion that tablets and cell phones can be useful for learning, can give parents the opportunity to do something and can calm children. Moreover, we show that the families who access the course early are not random in every respect: they consistently assign higher importance to being well-integrated into a community and having access to culture for their well-being, and eventually, they utilize their time with children differently.

1. Introduction

The aim of this paper is to evaluate "FACE", a parenting skills program of short duration for which randomization was not feasible. In order to provide analytical rigor to the empirical analyses, the researchers, and organizations responsible for the program, agreed on two key points. First, the program, a course designed to strengthen parenting skills, would have been repeated at least twice during a school year, with the end of the first course coinciding temporally with the start of the second one. Second, families would have been interviewed twice: at the beginning and at the end of the program.

The first requirement allowed for control over temporal factors, while the second requirement ensured that unobservable characteristics of the participants could be accounted for. The second requirement also enabled comparison between participants who (non-randomly) started the course at different times.

There are many programs of very short duration that follow a cyclical pattern, such as computer skills courses, foreign language courses, job-seeking courses, health rehabilitation, sports training, and summer camps. These programs are often managed by private and public bodies, and randomization is not always feasible or accepted, limiting their evaluation analysis to monitoring and descriptive analyses.

In this paper, we focus on a specific case study involving parenting skills courses, which have become increasingly used in the last few years and in several countries (Del Boca, 2015; Del Boca et al., 2014; Guryan et al., 2008).

Empirical results on human capital investments studies have shown that parental inputs are more significant than other inputs, such as schools and other educational services. In accordance to the empirical evidence from these studies, several countries have recently launched various programs aimed at improving parenting skills. In Europe, numerous member states have incorporated parenting support programs into their national strategies and legislation (Janta, 2013). These programs aim to enhance parenting skills by providing various resources such as information, educational services, training, counseling, and other interventions that influence parents' understanding and performance of their parenting role (Daly, 2007).

The objective of the FACE program was to provide parents with

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educational resources and knowledge to improve their parenting skills and, consequently, impact positively their children's well-being. Specifically, our study examines how FACE affected parents' awareness of the importance of spending time with their children, attending childcare centers, and of the use of digital devices. The latter issue is particularly significant given the changes brought about by the COVID-19 pandemic. During the pandemic, movement restrictions and the suspension of in-person activities led to a significant increase in internet usage across all age groups. In 2021, 73 % of individuals aged 11 and above reported using the internet at least once a week, marking a 6-percentage point increase over 2019 (Istat, 2023). For children, the internet became the primary means of socializing with friends, participating in online learning activities, maintaining the school-child-family bond, and keeping in touch with grandparents or other relatives not residing in the same household (Mascheroni et al., 2021; Zecca, 2021).

The FACE program was implemented over two school years, 2019–20 and 2020–21. Promoted by the institution Con i Bambini, it was conducted in four Italian cities: Naples, Reggio Emilia, Palermo and Teramo. The program consisted of six sessions where parents engaged in various activities with their children, including storytelling, craft projects, and digital, musical, and reading workshops. The aim was to foster the development of manual, sensory, expressive, communicative, and relational skills in both children and parents. These sessions provided a valuable opportunity for families without access to childcare and educational services for children (aged 0–6) to come together. During these gatherings, children interacted and played with their peers, while parents exchanged experiences, opinions, and ideas on educational, pedagogical, and social matters of mutual interest. Parenting was thus facilitated by diverse and adaptable opportunities for discussion and interaction with qualified educators and fellow parents. The course emphasized the development of the parent-child relationship, allowing parents to discuss any parenting issues or challenges with educators. Digital devices were also used in the FACE program as tools for discovery and learning. While the program varied slightly from city to city, the core content remained the same.

In a previous study, Del Boca et al. (2021) analyzed the first edition of FACE. To assess its effectiveness, they implemented a randomized controlled trial based on a phase-in mechanism. The parenting courses were offered twice during the 2019–2020 school year. Families had the opportunity to enroll in the FACE program until the end of September 2019, but they were not free to choose the dates they wished to attend. They were randomly assigned to either the treatment or control group across all four cities. The parenting courses were conducted in two separate periods: the treatment group attended from October 2019 to the end of January 2020, while the control group attended from the end of January to May 2020. At the end of the first courses, in January 2020, when the control group started attending, both groups completed an assessment questionnaire. The findings indicated that the program had a positive impact on the families' understanding of the importance of educational activities and the value of spending time together.

However, the randomization method used in the program, which involved staggered starts, received criticism from the educational bodies of the project. These bodies reported that some families who were accepted into the program chose not to participate, either because they did not end up in their preferred cycle or because they were separated from other families who could have provided support or carpooling to reach the course locations. These concerns were further amplified by the outbreak of the COVID-19 pandemic in early 2020, which significantly impacted the implementation of the program during the 2020–21 school year. Due to the high risk that the activities would be suspended intermittently, children and families were given the opportunity to participate at any time of the year to increase their chances of joining the program. We decided, in agreement with Reggio Children Foundation - the lead organization that coordinated the whole program, to refrain from randomizing the list of enrollees. Instead, we opted to schedule the program in several cycles throughout the school year, with the end of a cycle coinciding temporally with the beginning of the following one.

To evaluate the impact of the program, we conducted interviews with families before and after their participation in the course at different points during the school year. The same set of questions was posed to all the families. We present two models of analysis: the first compares families who have just finished the course with those who are about to start it; the second compares the same families over time, incorporating additional control variables to account for temporal factors. Additionally, we propose a model to test whether families who enrolled early were systematically different from those who enrolled later.

2. Data collection

Families enrolled in the program were asked to complete a questionnaire during both the first and final meetings. At the first meeting, after a brief introduction, the facilitators provided parents with a link to the questionnaire. Similarly, during the last meeting, another link was provided, which included additional questions regarding satisfaction with the activities conducted. Parents were asked to complete the final questionnaire before the concluding remarks.

Both the initial and final questionnaires contained a set of identical questions, which represented our outcomes of interest. Parents were asked about family well-being, confidence in child-rearing, and their child's use of digital devices. They were asked to provide their personal opinions on the potential benefits and drawbacks of using digital devices and the role of kindergarten in early childhood. A number of questions ask about the activities that parents do with children: reading, watching TV, playing outdoors, and sharing meals with other families. The questionnaires also included socio-demographic questions: the participating parent's gender, education, and employment; the child's gender and age; and whether the child attended kindergarten. The questionnaire link was specific to the city of the interview, and the date was automatically recorded by Google Forms.

A total of 276 questionnaires were collected at the first meeting, and 167 were collected at the final meeting. Only 127 families completed both questionnaires. The first column of Table 1 summarizes the socio-demographic characteristics of these 127 families, which were used for the analyses. We observed that 54 % of the participating children were girls, with an average age of three years. In 97 % of cases, the mother was the parent participating in the course and completing the questionnaire. Most parents had a relatively high level of education, with 54 % holding a degree and 37 % having a high school diploma. Regarding employment, the distribution closely aligns with national statistics: 40 % work full-time, 15 % work part-time, and 45 % are not employed.

The other two columns of Table 1 compare the socio-demographic characteristics of families who attended the course and filled both questionnaires with the characteristics of families who started the course but did not complete it (or did not fill the final questionnaire), as well as with the characteristics of families who joined the course after the first meeting (or did not complete the initial questionnaire). We observe that those who have completed the entire program and responded to both questionnaires are more likely to be mothers, highly educated, and less likely to have a part time job. This analysis, as well the following ones, provides relevant insights into the self-selection of families into the program and the generalizability of the results. Tables 2 and 3 compare, instead, the outcomes of families who filled both questionnaires and attended the entire course with those who did not. Some differences were noted even in absence the intervention: families who attended the entire course were more likely to engage in activities with their children (such as dancing the previous week, watching a cartoon together, or doing a workshop together). These parents also differed in their views on the use of digital devices (believing they help to calm the child and give the adult time to do other things). This suggests that these parents spend more time with their children but also require some time for themselves. Finally, they link family well-being

Table 1
Descriptive statistics.

VARIABLES	Both questionnaires filled Mean (1)	Only initial questionnaire filled Mean (2)	P-value (1)-(2)	Only final questionnaire filled Mean (3)	P-value (1)-(3)
Participating child					
Child is a girl	0.543	0.493	0.409	0.325	0.016
Child's age (months)	36.87	35.45	0.620	39.08	0.995
Child enrolled in kindergarten	0.551	0.680	0.028	0.675	0.547
Participating adult (*)					
Mother	0.969	0.914	0.059		
Level of education: High-school diploma	0.370	0.260	0.049		
Level of education: Degree	0.535	0.573	0.529		
Unemployed or inactive	0.449	0.367	0.166		
Part-time worker	0.150	0.240	0.061		
Full-time worker	0.402	0.393	0.889		
Presence of a partner	0.976	0.979	0.862		
The portion of FACE programs offered in:					
Naples	0.457	0.212	0.000	0.225	0.009
Teramo	0.134	0.185	0.246	0.150	0.798
Palermo	0.276	0.285	0.866	0.475	0.019
Reggio Emilia	0.134	0.318	0.000	0.150	0.798
Number of id (observations)	127	149		40	

Notes: Socio-demographic characteristics of those families who responded to both questionnaires, of those who responded only to the initial one, of those who responded only to the final one. (*) Questions about the participating adults were included only in the initial questionnaire.

Table 2
Parents' opinions and attitudes.

	Initial questionnaire			Final questionnaire		
	Both questionnaires filled	Only one questionnaire filled	P-value	Both questionnaires filled	Only one questionnaire filled	P-value
Well-being: being well integrated into a community	0.863	0.861	0.966	0.882	0.900	0.755
Well-being: having access to culture	0.813	0.881	0.122	0.898	0.900	0.966
Well-being: living in an area that offers opportunities	0.776	0.796	0.695	0.835	0.850	0.819
Well-being: having good quality relationships with friends and family	0.937	0.979	0.077	0.921	0.975	0.235
Well-being: economic security	0.887	0.944	0.089	0.882	0.825	0.357
Self-confidence in comparison and sharing with other parents/adults (1 −10 scale)	7.409	7.409	1.000	7.819	8.125	0.212
Cell phone: Calms the child when they are nervous	0.260	0.262	0.980	0.430	0.412	0.853
Tablet: Calms children when they are nervous	0.240	0.252	0.833	0.402	0.412	0.919
TV: Calms children when they are nervous	0.402	0.297	0.100	0.467	0.588	0.222
Cell phone: Gives the parent/adult an opportunity to attend to something	0.531	0.472	0.389	0.645	0.647	0.982
Tablet: Gives the parent/adult an opportunity to attend to something	0.561	0.476	0.208	0.636	0.588	0.623
TV: Gives the parent/adult an opportunity to do something	0.848	0.742	0.052	0.860	0.765	0.194
Cell phone: Can be used for learning	0.454	0.492	0.571	0.636	0.735	0.288
Tablet: Can be used for learning	0.625	0.622	0.964	0.729	0.853	0.143
TV: Can be used for learning	0.838	0.806	0.527	0.935	0.912	0.654
Kindergarten: provides more time for work	0.244	0.270	0.793	0.385	0.545	0.350
Kindergarten: offers more free time for parents	0.289	0.324	0.733	0.487	0.455	0.852
Number of id	127	149		127	40	

Notes: Initial/final outcomes of those families who responded to both questionnaires, of those who responded only to the initial/final one.

less to economic security and the quality of relationships, evidence which is more difficult to interpret. Finally, the last two columns of Tables 2 and 3 compare the final outcomes of those who participated in the entire program with those who likely joined later. No significant differences were observed between the two groups, which is not easy to interpret. This could indicate that even partial attendance of the course yielded similar results, or that the families who joined later were different initially, but these differences diminished with attendance.

Table 3
Time use of children and parents together.

	Initial questionnaire			Final questionnaire		
	Both questionnaires filled	Only one questionnaire filled	P-value	Both questionnaires filled	Only one questionnaire filled	P-value
Activities in the last week: Dancing together with the child	0.929	0.823	0.009	0.906	0.950	0.379
Activities in the last week: Watching a cartoon with the child	0.858	0.776	0.080	0.874	0.800	0.247
Activities in the last week: Reading a book to the child	0.843	0.792	0.282	0.882	0.900	0.755
Activities in the last week: Playing outside together with the child	0.827	0.810	0.714	0.882	0.950	0.217
Last month: Discussing child education with other adults	0.701	0.748	0.381	0.780	0.725	0.480
Last month: Visiting places of worship with the child	0.157	0.203	0.334	0.252	0.250	
Last month: Attending a workshop with the child	0.150	0.082	0.077	0.197	0.225	0.702
Last month: Organizing meals with other families	0.551	0.599	0.430	0.638	0.500	0.122
Daily schedule: Impossible, there is always an emergency	0.031	0.048	0.492	0.000	0.000	.
Daily schedule: Well-defined with many activities, but I'm always in a rush	0.378	0.384	0.925	0.425	0.300	0.160
Daily schedule: Well-defined, the child has various activities throughout the da	0.433	0.473	0.515	0.394	0.400	0.944
Daily tablets and smartphone use: + 1 h	0.059	0.059	0.985	0.140	0.206	0.361
Daily TV watching: + 1 h	0.178	0.132	0.333	0.318	0.324	0.950
Number of id	127	149		127	40	

Notes: Initial/final outcomes of those families who responded to both questionnaires, of those who responded only to the initial/final one.

A final consideration concerns the sample to be used for the analyses. For the fixed effects model, we are forced to use the 127 families who completed the course and answered the questionnaire both before and after. For the treated-control analyses, we could potentially use more observations; for example, in the control group we could include all those who start, even if they do not finish it. However, we prefer to use only the 127 families that completed the process, as this is more likely to allow us to compare treated and control families with similar unobservable characteristics.

3. The empirical strategy

The four municipalities carried out two or three consecutive editions of parenting courses during the 2020–21 school year. Participating parents were asked to complete a questionnaire at the beginning of the course and another one at the end.

Fig. 1 provides an illustrative overview of the data collected, summarizing the outcomes of families who participated in each period: September to December, December to March, or March to June.

Let us consider, for example, the outcome of "time spent together playing outside". At the beginning of the course, the average value of the first group for this outcome results from its observable characteristics and unobservable characteristics fixed (*u1)* over time plus a temporal component (*t1)* (in September, the weather is still nice, for example). At the end of the course, the outcome would potentially have increased due to participation in FACE (F) and decreased, for example, by *t2* (in December, it is usually too cold to play outside). We can tell similar stories for the second and third courses.

We propose two specifications to estimate F. In the first, we assume:

$$u1=u2=u3,$$

that is, participants in the first course are not systematically different from those who participate later, for what concerns unobservable characteristics. We therefore compare outcomes at the end of the first course with outcomes at the beginning of the second course (December), and outcomes at the end of the second course with outcomes at the beginning of the third course (March), deriving the average of these two treatments:

$$(((u1 + t2 + F) - (u2 + t2)) + ((u2 + t3 + F) - (u3 + t3))) / 2 = F \quad (1)$$

with u1 =u2 =u3.

In the second specification, we exploit within-family variation, and assume:

$$t1=t4$$

that is, the temporal components (the season and concomitant facts) can be grouped together according to their similar effects on the outcomes of interest. In this example, we are assuming that playing outside is as common in September as in June.

In this case, we do not have to make assumptions about the unobservable characteristics of the families, which may influence the selection in one course rather than the other.

$$(((u1 + t2 + F) - (u1 + t1)) + ((u2 + t3 + F) - (u2 + t2)) + ((u3 + t4 + F) - (u3 + t3))) / 3 = F \quad (2)$$

with t1 = t4.

Model [1] is estimated through a linear regression, with robust

	September	December	March	June
First group	u1 + t1	u1 + t2 + F		
Second group		u2 + t2	u2 + t3 + F	
Third group			u3 + t3	u3 + t4 + F

Fig. 1. Dynamics of outcomes by group over time.
Notes: The figure illustrates the evolution in outcomes across three groups of participants during the period September to December, December to March, or March to June.

standard errors, by comparing the treated families and the controls:

$$y_{it} = \alpha + \beta_{TC} FACE_{it} + C_{it}'\gamma + X_{it}'\delta + \varepsilon_{it} \quad (3)$$

where y is the analyzed outcome of the parent of child i at time t, FACE is a dummy equal to 1 when the course has been attended, C is a vector of dummy variables which identify the end of the course (for the treated) / the beginning of the course (for the controls) in each city, X is a vector of control variables (gender and age of the child; respondents' work, education, employment, and age at child's birth; whether the respondent is the mother), and ε_{it} represents the error.

Model [2] is estimated through a linear regression, with parent-child fixed effects, and robust standard errors:

$$y_{it} = \kappa + \beta_{FE} FACE_{it} + \theta age_{it} + \tau_1 winter_{it} + \tau_2 fall_{it} + \zeta_i + \upsilon_{it} \quad (4)$$

where y is the analyzed outcome of the parent of child i at time t, FACE is a dummy equal to 1 when the course has been attended, *age* is the age in months of the child, *winter* and *fall* indicate the season in which the questionnaire was completed (spring is the excluded category),[1] ζ_i are individual fixed effects, and υ_{it} represents the error. Thanks to individual fixed effects, we can control for all the characteristics that are unchanged from the beginning to the end of the course, such as the gender of the parent and child, the parent's education, and other unobservable characteristics.

The first model is more efficient (exploiting cross-sectional information) and makes weaker assumptions about the temporal component (one course finishes *when* the following starts). The second model is less efficient (by differentiating the data) and makes stronger assumptions about the temporal component (assuming the same effect at different points in time) but makes weaker assumptions about the unobservable characteristics of the families.

Which specification is more appropriate? The first, if the unobservable characteristics do not play an important role, meaning that the families who participate in the first course are not systematically different from those who participate in the second, and the families who participate in the second course are not systematically different from those who participate in the third. We therefore estimate the following "self-selection" test:

$$y_{i,before} = \varkappa + \beta_{SS} FIRST_{i,before} + Z_{i,before}'\varsigma + \epsilon_{i,before} \quad (5)$$

where we test whether families who participate in the first course show initial outcomes that are systematically different from families who participate in the second or in the third course, once other socio-demographic characteristics, the city of residence, and the season have been taken into consideration.

4. Empirical Results

Tables 4 and 5 report the results of the analyses, respectively, on opinions and attitudes, and on the time use of children and parents. Each table is organized as follows: Column 1 includes the list of outcomes considered; Column 2 shows the average outcome level before participation in the program; Column 3 presents the results of the first model, where the outcomes of families who have just finished the course are compared to the outcomes of families who are about to start it; Column 4 presents the results of the second model, where the families' outcomes are compared before and after participation in the program; Column 5 reports the estimates of the self-selection model that tests whether there are systematic differences in the outcomes observed between families who signed up immediately and those who signed up later.

Let's consider, for example, the outcome "Well-being: living in an area that offers opportunities" (Table 4, line 3). On average, at the first meeting, 77.6 % of families describe this aspect as being important for their well-being (Column 2). By comparing families finishing the course (treated) and families about to start it (controls), we observe an increase of 12.7 % points (Column 3). Comparison of families at the beginning and at the end of the course reveals no significant difference (Column 4). We also see that families enrolled in the first course show a lower value of this variable, although it is not statistically significant. Overall, we trust the results from the treated and control models (Column 3) and conclude that participation in FACE has positive benefits on this aspect of family well-being.

Looking at Table 4, Column 5, it is clear that families enrolled first in the course give systematically higher ratings to the importance of being well integrated into a community, and having access to culture for their well-being. If we had referred just to the "treated-controls" model, without testing the assumptions, we would have mistakenly attributed this positive effect to participation in the program.

For the remaining outcomes listed in Table 4, we refer to the model treated/controls (Column 3), and find beneficial effects of the program on the importance of having good-quality relationships with friends and family, on the level of self-confidence in sharing own experiences with other parents and, in general, on the opinion that tablets and cell phones may be useful for learning, can give parents the opportunity to do something, and can calm children.

While Table 4 displays the results concerning opinions and attitudes, Table 5 considers changes in parental behaviors related to time spent with their children. Here, too, we observe some systematic differences: parents enrolled in the first session are less likely to have read a book, and to allow their children to use tablets/smartphones for more than one hour per day. We do not observe much impact in terms of effective behaviors, except for a negative impact on dancing together in the last week (which may be due to the time taken up by the program).

Another possibility we can explore, given the data available, is to compare the families who participated in FACE during its first edition (2019–20) with those who participated in the second (2020–21), whose evaluation is the subject of this study. There are two theoretical differences that could result in the selection of two distinct sets of families. Firstly, there is the logistical arrangement in the first year, influenced by the randomization process. In the 2019–2020 year, families had to enroll in September, and for half of them, the course was only available four months later. In the 2020–21 year, registrations were open for several months, allowing families to join the "first" upcoming course. This difference might lead us to observe parents who are, on average, more "motivated" in the first edition than in the second since they had to wait for the start of the assigned course. The second difference is the occurrence of the pandemic. Families who enrolled in the second year may have had different needs.

In Table 6, we examine what has changed from one year to the next. Table 6 shows a selection of outcomes, common to the two-year evaluation, measured at the first interview, before participating in the program. For the 2019–2020 edition, we can observe the outcomes at the first interview (pre-treatment) only for the control group, who responded to the first questionnaire (first column). For the 2020–21 edition, we can observe these outcomes, after registration, at the first meeting of the first available course (second column).

We notice several differences between the families of the 2019–20 edition and those of the 2020–21 edition. Compared to the parents of the first edition, those of the second edition are much more inclined towards the digital world: they believe that digital devices are useful tools for learning, calming the child, and giving the parent some time to do other things. Conversely, they are less likely to have done a workshop with their child in the past month and to have discussed education with other parents.

First, these results might confirm the greater "motivation" of the families involved in the first year, as they spent more time with their children and less on digital devices. Second, it is possible that families

[1] In all three seasons, we observe families both starting and ending the program.

Table 4
The impact of FACE on parents' opinions and attitudes.

COLUMN 1	COLUMN 2 Value of the outcome at the beginning of the course		COLUMN 3 Treated-controls		COLUMN 4 Child-parent fixed effects		COLUMN 5 Self-selection test	
OUTCOMES	*mean*	*sd*	*beta*	*sd*	*beta*	*sd*	*beta*	*sd*
Well-being: being well integrated within a community	0.863	(0.345)	0.104 * *	(0.049)	−0.134	(0.073)	0.288 * *	(0.141)
Well-being: having access to culture	0.813	(0.391)	0.129	(0.067)	0.018	(0.065)	0.408 * *	(0.164)
Well-being: living in an area that offers opportunities	0.776	(0.419)	0.127 * *	(0.054)	−0.001	(0.087)	−0.101	(0.189)
Well-being: having good-quality relationships with friends and family	0.937	(0.245)	0.090 * *	(0.044)	−0.067	(0.055)	0.048	(0.140)
Well-being: economic security	0.887	(0.318)	0.024	(0.053)	−0.108	(0.058)	0.088	(0.144)
Self-confidence in comparison and sharing with other parents/adults (1 −10 scale)	7.409	(1.550)	0.598 * *	(0.286)	0.154	(0.236)	1.178	(0.816)
Cell phone: Calms children when they are nervous	0.26	(0.441)	0.258 * **	(0.095)	0.052	(0.128)	0.017	(0.214)
Tablet: Calms children when they are nervous	0.24	(0.429)	0.160	(0.094)	0.006	(0.118)	−0.066	(0.194)
TV: Calms children when they are nervous	0.402	(0.493)	0.046	(0.107)	−0.082	(0.107)	−0.509	(0.283)
Cell phone: Gives the parent/adult an opportunity to do something	0.531	(0.502)	0.231 * *	(0.100)	−0.093	(0.098)	0.534	(0.379)
Tablet: Gives the parent/adult an opportunity to do something	0.561	(0.499)	0.152	(0.103)	−0.066	(0.127)	0.606	(0.333)
TV: Gives the parent/adult an opportunity to do something	0.848	(0.360)	0.053	(0.073)	−0.105	(0.076)	0.297	(0.197)
Cell phone: Can be used for learning	0.454	(0.500)	0.217 * *	(0.103)	0.137	(0.099)	−0.178	(0.328)
Tablet: Can be used for learning	0.625	(0.487)	0.185 * *	(0.085)	−0.064	(0.113)	0.141	(0.392)
TV: Can be used for learning	0.838	(0.370)	0.077	(0.055)	0.102	(0.060)	0.174	(0.256)
Kindergarten: provides more time for work	0.244	(0.435)	0.260	(0.178)	0.499 * **	(0.185)	−0.223	(0.508)
Kindergarten: offers more free time for parents	0.289	(0.458)	0.272	(0.190)	−0.018	(0.201)	−0.106	(0.451)
N of id					127			

Notes: In the "treated-controls" model (Eq. 3 in "Empirical strategy"), we include the following control variables: gender; child's age in months; whether the mother answered the questionnaire; the respondent's education, work status, and age at the child's birth; the reference group dummy for each FACE program (city) and time period. In the "child-parent fixed effects" model (Eq. 4 in "Empirical strategy"), we include the following control variables: the season when FACE was attended (autumn and winter, spring is the reference category), and the child's age in months. In the self-selection test (Eq. 5 in "Empirical strategy"), we include the following control variables: gender; the child's age in months; whether the mother answered the questionnaire; the respondent's education, work status, and age at the child's birth; the season when FACE was attended (autumn and winter, spring is the reference category); the municipality in which FACE was attended. Robust standard errors in parentheses for all models. * * $p < 0.05$; * ** $p < 0.01$.

Table 5
The impact of FACE on the time use of children and parents.

COLUMN 1	COLUMN 2 Value of the outcome at the beginning of the course		COLUMN 3 Treated-controls		COLUMN 4 Child-parent fixed effects		COLUMN 5 Self-selection test	
OUTCOMES	*mean*	*Sd*	*beta*	*sd*	*beta*	*sd*	*beta*	*sd*
Activities in the last week: Dancing together with the child	0.929	(0.258)	−0.137 * *	(0.058)	−0.046	(0.045)	−0.054	(0.094)
Activities in the last week: Watching a cartoon with the child	0.858	(0.350)	0.042	(0.061)	0.103	(0.053)	−0.024	(0.126)
Activities in the last week: Reading a book to the child	0.843	(0.366)	−0.074	(0.069)	−0.005	(0.047)	−0.435 * *	(0.207)
Activities in the last week: Playing outside together with the child	0.827	(0.380)	−0.003	(0.065)	−0.022	(0.071)	0.195	(0.191)
Last month: Discussing child education with other adults	0.701	(0.460)	−0.073	(0.091)	0.127	(0.092)	−0.345	(0.234)
Last month: Visiting places of worship with the child	0.157	(0.366)	0.061	(0.076)	0.202 * **	(0.069)	−0.104	(0.159)
Last month: Attending a workshop with the child	0.15	(0.358)	0.028	(0.075)	−0.050	(0.115)	−0.267	(0.156)
Last month: Organizing meals with other families	0.551	(0.499)	−0.017	(0.091)	0.041	(0.082)	−0.364	(0.230)
Daily schedule: Impossible, there is always an emergency	0.031	(0.175)	−0.034	(0.020)	−0.034	(0.041)	−0.038	(0.098)
Daily schedule: Well-defined with many activities, but I'm always in a rush	0.378	(0.487)	0.048	(0.099)	0.155	(0.089)	−0.299	(0.225)
Daily schedule: Well-defined, the child has various activities throughout the day	0.433	(0.497)	−0.024	(0.096)	−0.028	(0.097)	0.372	(0.242)
Daily tablet and smartphone use: + 1 h	0.059	(0.238)	0.171 * *	(0.081)	−0.114 * **	(0.040)	−0.159 * *	(0.079)
Daily TV use: + 1 h	0.178	(0.385)	0.186	(0.110)	−0.034	(0.074)	−0.139	(0.300)
N of id					127			

Notes: In the "treated-controls" model (Eq. 3 in "Empirical strategy"), we include the following control variables: gender; child's age in months; whether the mother answered the questionnaire; the respondent's education, work status, and age at the child's birth; the reference group dummy for each FACE program (city) and time period. In the "child-parent fixed effects" model (Eq. 4 in "Empirical strategy"), we include the following control variables: the season when FACE was attended (autumn and winter, spring is the reference category), and the child's age in months. In the self-selection test (Eq. 5 in "Empirical strategy"), we include the following control variables: gender; the child's age in months; whether the mother answered the questionnaire; the respondent's education, work status, and age at the child's birth; the season when FACE was attended (autumn and winter, spring is the reference category); the municipality in which FACE was attended. Robust standard errors in parentheses for all models. * * $p < 0.05$; * ** $p < 0.01$.

who used digital devices more frequently became more interested in the course due to the increased time spent at home using digital devices during the pandemic. Third, it could be that the families from the first and second years are not inherently different, and the outcomes observed for the second group simply reflect the impact of COVID on their behaviors and opinions. During the pandemic, the families of the second year were unable to participate in workshops and talk to other parents due to restrictions, and their opinions on digital devices may have changed. We don't have a definitive answer. However, it is interesting to note that the initial outcomes the program aims to influence are

Table 6
Families in the first FACE evaluation (2019–20) and in the second FACE evaluation (2020–21).

	FACE 2019-20 Pre-intervention questionnaire	FACE 2020-21 Pre-intervention questionnaire	P-value (1)-(3)
Activities in the last week: Reading a book to the child	0.756	0.843	0.115
Last month: Attending a workshop with the child	0.339	0.150	0.001
Last month: Discussing child education with other adults	0.828	0.701	0.023
Tablet: Can be used for learning	0.452	0.625	0.014
Tablet: Gives the parent/adult an opportunity to do something	0.280	0.561	0.000
Tablet: Calms children when they are nervous	0.113	0.240	0.021
N of id	118	127	

Notes: In the evaluation of the first edition of FACE, the pre-intervention questionnaire was proposed in January 2020 to those who were randomized in September and whose course start date was January 2020. In the evaluation of the second edition of FACE, the pre-intervention questionnaire was proposed to all those who began the course, at different times of the year.

significantly different.

5. Learned lessons

The opportunity to use this evaluation design is related from a completely random event, the Covid-19 pandemic in 2019. With the advent of the pandemic, our preference as evaluators to employ an experimental design diminished to allow families with children (for whom the pandemic represented a very stressful period) the opportunity to access family services.

We therefore designed an evaluation method that was as rigorous as possible, despite the absence of a real control group randomly defined, to mitigate the risk of bias as much as possible. We started with the basic idea of a before-after design, which would at least limit bias from unobservable characteristics. However, we were aware of the limitations of not controlling for factors that change over time. Firstly, when talking about children, the effect of their growth on their behavior and parental perceptions is significant. Secondly, seasonality plays a role: it is easier to spend time outdoors during warm months and more time with books or in front of the TV during cold months. Lastly, there is the risk of bias linked to the events experienced by families during the study period, such as job loss, income reduction, and school closures.

We discussed with the program managers the possibility of repeating the course, which lasted around 3 months, several times during the school year, creating an overlap between the end of one course and the beginning of the next. They agreed, as this logistics fit well with their staff management, space availability, and resource constraints. This approach allowed us to estimate two models: the first model which consists in a simple before-after design; the second model that compares the outcomes of the families finishing the program (treated) with the outcomes of the families who were about to start (controls). Obviously, the two models do not always yield the same results, as we have seen. Besides being guided by the self-selection test, the researcher could also reflect on the assumptions underlying the two models. How much might a particular outcome depend on temporal factors? What role does self-selection in an earlier course play in determining another outcome?

If we were to repeat this evaluation, we would recommend including a series of questions about why the course was started at that particular time as opposed to earlier or later: Was it due to recent awareness of the course? Is it a time of year when the family has more time availability? Or was the existence of the course already known, but the need arose now? Do other families of friends attend the same session? The answers to these questions, and a possible sub-selection of the sample closest to the idea of randomness, can help achieve more credible results based on less strong assumptions.

A final point concerns the timing of the questionnaires. In our case, the two questionnaires were filled out approximately three months apart. The respondents likely noticed that the questions were the same but probably did not remember their previous answers. But consider a 5-day course: would we ask the same questions after only 4 days? Wouldn't it increase the likelihood of socially desirable responses? If we have to evaluate a five-day program, repeated twice, we would probably act in the following way. On day 1, we would ask both groups generic questions about their choice of the program at that time. To evaluate the effect, we would then propose a second questionnaire containing the outcomes of interest to the first group on day 5 (treatment) and to the second group on day 1 (control). This approach would preclude the estimation of a personal fixed effects model but would allow for the estimation of a treated-controls design and a sort of self-selection test, decreasing the risk of socially desirable responses. This simplified design resembles a randomized phase-in trial but, obviously, without the randomization.[2]

6. Conclusions

In this paper, we used two empirical strategies to evaluate the impact of parenting skills programs on parents' opinions and use of time with their children.

Organizing a randomized control trial would have been difficult for several reasons. The first related to the historical moment, just after the outbreak of the pandemic, and the desire to involve families in person as soon as they were available. The second is linked to the previous randomized controlled trial, which had shown a high dropout rate of families not chosen to immediately take part in the program or unwilling to participate due to the lack of families of friends in their assigned group.

The two proposed strategies, which are both straightforward, are viable due to the short-term and recurrent nature of the program analyzed. We first propose a treated-control comparison wherein the treated group comprises families who have just finished the course, while the control group consists of families just embarking on the course. This approach leverages the willingness of both groups to participate in the program, albeit at different points of time. Finally, the fact that the end of one course coincides with the beginning of the next one allows the temporal dimension to be kept under control. The only potential bias arises from the possibility that families engaging in the program earlier may be systematically different from those who decide to take part in the program later. We can test for this bias, and indeed, for a limited number of outcomes, we find that families engaging earlier in the program first are different from families engaging later. Specifically, those who participate earlier seem to place greater emphasis on the importance of community and cultural involvement, and make efforts to restrict their children's screen time, but are less inclined to read to their children.

The second strategy we propose involves a simple before-after comparison, enriched by the inclusion of temporal control variables. These temporal controls capture the effect of events with less precision than those of the first model. In fact, we must define time intervals large enough to include both treated and control groups. However, this approach provides the distinct advantage of mitigating the impact of self-selection of families into courses.

This methodology ultimately seems applicable to various short-duration programs repeated over a longer period: job-finding courses,

[2] This method is currently being used to evaluate the effects of two programs: "Racquets in the Classroom", a 4–6-week secondary school sports program, and "Summer on the Stage", a weekly summer camp for kids dedicated to theatrical art.

formative summer schools, summer camps for children, workplace first aid, or safety courses.

CRediT authorship contribution statement

Lucia Schiavon: Investigation, Formal analysis, Data curation, Writing – original draft, Writing – review & editing. **Chiara Daniela Pronzato:** Writing – original draft, Project administration, Methodology, Investigation, Conceptualization, Writing – review & editing. **Daniela Del Boca:** Writing – original draft, Investigation, Funding acquisition, Writing – review & editing.

Declaration of Competing Interest

The authors acknowledge financial support from Con I Bambini. The authors declare that they have no known competing interests or personal relationships that could have appeared to influence the work reported in this article.

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