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What Works in Education?

Using Evidence to Improve Education

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Are summer programs effective in improving learning and educational outcomes in students?

Miquel Àngel Alegre Canosa

Summer holidays break the rhythm of instruction for children and adolescents and in many cases, this can represent a setback in students' learning. In a context such as ours, where a long summer holiday period overlaps with education indicators that, in general, show considerable scope for improvement, summer learning programs seem the ideal initiative to take centre stage in advancing learning opportunities. This review of the evidence examines to what extent summer learning programs can address this issue.

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Are summer programs effective in improving learning and educational outcomes in students?

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Motivation

During the stages of mandatory education, students in Catalonia have around eighty-five days' holidays during the summer months. This places Catalonia, and indeed Spain, among the OECD countries with fewer school days during the school year and a higher concentration of holidays during the summer.

The school summer holidays pose two particularly relevant challenges. On the one hand, the holidays generate problems for families in balancing work-life commitments, particularly in homes where both parents work and where they do not have sufficient financial resources to enroll their children in the range of existing available summer courses.

On the other hand, the summer holidays halt the pace of learning for children and adolescents, and in many cases represent a setback; this is commonly referred to as summer learning loss. Research from around the globe shows that this loss does not affect learning in all students equally, and mainly occurs in the most socially vulnerable groups. This differential effect leads to a widening cyclical cumulative gap in educational inequalities summer after summer, among children from culturally and socioeconomically advantaged families and low-income families [1] [2].

The following study focuses on summer programs that seek to enhance the learning of the most vulnerable students and reviews their effectiveness in achieving this objective. In a context such as ours, where a long summer holiday period overlaps with education indicators that, in general, show considerable scope for improvement, summer learning programs seem the ideal initiative to take centre stage in advancing learning opportunities.

Summer holidays halt the pace of learning for children and adolescents, and in many cases represent a setback; this is commonly referred to as summer learning loss. Research shows that this loss is particularly detrimental to more socially vulnerable groups.

The programs we are referring to

There are a wide range of organised summer activities available: from summer camps and week-long retreat camps, ("standard", musical, languages, sports, etc.) to tutoring and acceleration plans and even cultural activity programs and values education. In fact, it is common for summer camps to include a wide range of different activity profiles.

This review deals with summer programs in which formal learning activities play a central role. We are mainly referring here to compensatory or remedial activities aimed at offsetting the deficit of students in different curriculum areas (especially in language and mathematics and, to a lesser extent, science). In addition, these students frequently tend to come from disadvantaged social backgrounds. We will call these **summer learning programs or SLPs**.

In addition to the profile and content of formal and informal activities included, SLPs can also differ insofar as the different operational variables, among which are the following:

- *Mandatory or voluntary nature of the program.* This refers to whether participation in the program is established as a necessary condition for progressing in their academic studies (e.g. to pass the course) or to receive accreditation for a specific academic qualification. Mandatory programs are understood as those which incorporate some of these conditions, and voluntary programs as those in which participants enrol with no fixed conditions.
- *Dosage.* This refers to the duration, frequency, and number of weeks or months the activities last. Typically, the programs take into account the number of weeks, days per week and hours per day that children and youth participate in the program activities.
- *Profile of participants and access criteria.* Relating to sociodemographic (age, sex, academic level, socioeconomic and cultural status, etc.), cognitive (level of competence and performance, subjects failed, etc.) and non-cognitive (social and emotional skills, self-esteem, behavioural habits, etc.) characteristics of the students participating in the program. A significant number of SLPs consider some of these variables as admission requirements for the program, whereas others do not.
- *Profile of those in charge of or, delivering activities.* There tend to be differences depending on the level of qualification and specialization of staff responsible for planning and implementing program activities. It also takes into consideration whether educators are volunteers (with or without additional training) or paid professionals.
- *Venue where the activities take place.* Programs can differ depending on whether activities take place in the same educational centre or at another location open to the public (public facilities or third sector organizations).
- *"Special cases".* This category includes three types of programs. First, the non-compensatory **"preparatory" SLPs** , which focus on specific content or skills that may be required to access certain secondary or higher education study programs. The academic and social profiles of participants in preparatory SLPs normally tend

to be from higher-income families than that of students of compensatory SLPs. Secondly, we refer to **"at-home" SLPs.** Generally, these programs tend to focus on the area of reading (reading at-home summer interventions) and consist in facilitating access for students to books, guides and other reading materials to enable them to work independently or with the help of parents during the summer holidays. Finally, this category also includes **"residential" SLPs** involving students who board in schools or summer camps for the duration of the entire program or part thereof. These programs are generally designed for adolescents and young students with academic deficiencies and problems associated with attitudinal and behavioural issues.

This review focuses its attention on the effectiveness of compensatory summer learning programs (SLPs), as such, designed to address students with skills and often social deficiencies.

This review focuses on compensatory, directed SLPs (in other words, not at-home programs) and non-residential. The three types of SLPs we have classified here as "special cases" are taken into consideration and mentioned occasionally throughout the text with the sole aim of serving as a contrast to the range of impacts of SLPs under review.

Questions influencing the review

Considering the diversity of interventions that can be included under the category of SLPs, the review of evidence we present here aims to respond to the questions: Are SLPs effective in improving educational outcomes of children and adolescents who participate? In addition, what about improving their non-cognitive skills (in social, emotional and attitudinal aspects)? What attributes or components of SLPs are most effective in bringing about these improvements? Which student groups have more to gain from SLPs? In particular, are SLPs effective in offsetting the educational progress deficit among more vulnerable students and therefore, as a measure against educational inequality? Are SLPs a cost-effective intervention? Finally, and depending on how we might respond to the questions above, would it be advisable to extend and expand such programs in Catalonia? And, under what conditions?

Reviewing the evidence

Reviews and studies considered

Summer programs aimed at improving academic skills have been implemented quite unevenly throughout Catalonia. It should be pointed out that their deployment has generated very little evidence regarding their potential impact[1] . Consequently, in order to respond to the questions outlined above, one must draw on evaluations and reviews of studies of programs carried out in other countries, principally English speaking.

In these countries, mainly in the United States, researchers have generated a considerable amount of solid evidence on the effectiveness of SLPs. A significant part of this evidence is outlined in the meta-analysis (5) and systematic reviews (2) listed in Table 1, which represent the empirical basis of the review of reviews we present here. Of these seven studies, five focus on evaluations of summer programs, while the meta-analysis of Kidron and Lindsay [3] and Lauer et al. [4] incorporate these programs within the broader framework of out-of-school activities.

The seven studies bring together a wide range of experimental and quasi-experimental evaluations on the impact of different SLPs. The programs examined by the authors focus mainly on improving language or math skills and, to a lesser extent, on the area of non-cognitive skills (social, emotional or health). Generally, programs prioritize participation of primary and secondary school students with certain academic deficits and very often, social deficits as well. The dosage ranges between 80 and 240 hours distributed over between six and eight weeks' activity. As explained below, there is diversity within these SLPs regarding the profile of educators who deliver the activities as well as regarding the inclusion, or not, of leisure activities or working on behavioural issues.

As well as the programs included in these reviews, we should also mention other experimental pilot SLPs implemented more recently, the results of which were also considered in this review. These include: Building Educated Leaders for Life (BELL) Summer Program [11], Elevate Maths [12] and Voluntary Summer Learning District Programs [13], in the United States; and Future Foundations Summer Programme [14], Summer Active Reading Programme [15] and the Discover Summer School programme [16], in the United Kingdom.

1 Ivàlua has been collaborating in the analysis of outcomes from the Èxit Estiu program set up by the Barcelona Education Consortium (Consorci d'Educació de Barcelona) since 2014. Within the framework of this collaboration, the effectiveness of an intervention based on smartphone use has been experimentally tested as a mechanism for communicating between secondary schools and the families of students participating in the programs. Notwithstanding, as of going to print, the impact of the Èxit Estiu program as a whole has yet to be analysed.

Table 1.
Meta-analysis and systematic reviews considered

References	Type of program	Skills considered	Student profile	Dosage of activities	Effect size*
Meta-analysis (no. studies)					
Cooper *et al.* [5] (n = 41)	SLP	Reading and math	Primary and secondary students; performing below standard, diverse social profiles	Majority of programs between 60 and 120 hours	+0.26 (English) +0.26 (math)
Kidron and Lindsay [3] (n = 30)	SLP and "out-of-school" programs	English, math and non-cognitive outcomes	Primary and lower grade secondary students; diverse social and performance profiles	SLP: Between 6 and 8 weeks; between 6 and 8 hours per day	SLP: +0.16 (English)
Lauer *et al.* [4] (n = 53)	SLP and	Reading and math	Primary and secondary students; performing below standard and/ or socially vulnerable	SLP: Up to 210 hours' activity	SLP: +0.07 (reading) +0.09 (math)
Kim and Quinn [6] (n = 41)	SLP (standard and at-home)	Reading	Primary and lower grade secondary students; performing below standard, diverse social profiles	SLP (standard): Between 70 and 175 hours' activity (between 4 and 8 hours daily)	SLP (standard): +0.09 (reading)
Quinn *et al.* [7] (n = 13)	SLP	Mathematics	Primary and lower grade secondary students; performing below standard, diverse social profiles	(not reported)	+0.07 (math)
Systematic reviews (no. studies)					
McCombs *et al.* [8] (n = 13)	SLP	Reading and math	Primary and lower grade secondary students; performing below standard, diverse social profiles	(not reported)	---
Terzian *et al.* [9] (n = 28)	SLP and other summer programs	Language, math and non-cognitive outcomes	Primary and secondary students; performing below standard, socially vulnerable	SLP: Between 6 and 8 weeks; between 6 and 8 hours per day	---

Source: Prepared by authors based on: https://educationendowmentfoundation.org.uk/public/files/Toolkit/Summer_schools_Toolkit_references.pdf

*Standardized effect size is presented here in accordance with Cohen's estimator [10] [24]. In this way, the effect size is comparable between programs. Based on indications given by Cohen himself, the following is generally understood: a value in the region of or lower than 0.2 indicate a small effect size; a value around 0.5, represents a medium effect size; values in the region of, or above 0.8 represent a significant effect size.

Can SLPs improve students' educational outcomes?

In general, it appears to be clearly demonstrated that summer learning programs can produce significant positive impacts on students' learning processes. According to the summary of evidence from the Education Endowment Foundation, as a whole, the effect of these programs is equivalent to approximately two additional months' learning progress compared to average academic progress made during a standard course. In relative terms, this is not a significant gain, being less than that

achieved by, on average, other educational interventions such as individual tutoring programs throughout the school year or cooperative grouping strategies. However, we can conclude that the average gain from participating in a SLP is pronounced, statistically significant, and especially remarkable considering the low dosage typical of these programs.

The observation period of the reviewed studies tends to be limited to the same academic year in which the intervention takes place; and often, the impact is measured by analysing results students obtain directly after program implementation or at the beginning of the new school year. This means therefore that we cannot comment on the effectiveness of these programs beyond the short-term.

Either way, the evidence reviewed suggests that the effects of SLPs can vary and this variation depends on the objectives and skills prioritized, the characteristics of the interventions and the profile of the students involved.

SLPs can deliver a positive impact on students' learning process. These impacts may be equivalent to approximately two additional months' learning progress compared to average academic progress made during a standard course.

What skills might the SLPs improve?
The literature reviewed identifies the following skills areas prioritized by SLPs:

- **Well-documented impact in the field of linguistics, particularly in reading skills** [6] [9]. SLPs devoting their efforts to linguistic abilities tend to be effective; for example, this is the case with the Read to Achieve Summer Literacy Day Camp [17], Summer Literacy Program [18] and KindergARTen Summer Camp [19] programs. Moreover, some programs that combine initiatives aimed at improving reading abilities along with other activities targeting other skills (usually math) showed a particularly positive differential impact on the former, in other words reading, (see Box 1 as in the case of the Future Foundations program [14]).

  The evidence is less conclusive when it comes to determining which areas of reading abilities (phonetic decoding, reading performance, comprehension, etc.) are more susceptible to the effects of the SLPs.

Box 1.
Future Foundations Summer Programme (The United Kingdom)

This is a summer learning program set up in 2012 by the Future Foundations organisation. The experimental pilot was delivered during the summer of 2013 in 43 schools located in two sites within the metropolitan area of London (Enfield and Islington) and Brighton. This pilot scheme was funded by the Education Endowment Foundation and evaluated by researchers from the University of Durham.

A total of 435 pupils in their final two years of primary school (Year 5 and Year 6) took part in the experiment, all of whom were either from socioeconomically disadvantaged backgrounds (eligible for free school meals), or performing below minimum skills standard requirements in maths and English. Participation in the program was voluntary and free, and implemented over four weeks during regular school day timetables. The program involved two types of activity:

a) Lessons, of a compensatory nature, consisting in one maths lesson and one English lesson with a duration of 75 minutes each, delivered daily during the morning timetable by qualified primary and secondary school teachers. The lessons were delivered to reduced groups (10 pupils), following a strongly-structured curriculum and were supported by mentors and peer-mentors.

b) Afternoon sessions with sports and enrichment activities, including theatre, crafts, science games, sporting and musical activities.

The intervention consisted in randomly allocating 435 pupils to decide who would be selected to attend and participate in the program (239 pupils) and who would be allocated to the control group (196 pupils), and to compare the outcomes of both groups at the end of the summer. Insofar as random assignment allowed the intervention to establish two groups of pupils (participants and control) who presented with the same socioeconomic and academic performance characteristics, the results from this comparison indicates the impact of the program. As such, the resulting study concludes the following:

- The program made a positive impact on performance in English. This impact is reduced (+0.17), but it is statistically relevant, equivalent to two additional months' progress over the average progress over the course of a year. The impact on English was greater among boys (3 additional months' progress) than among girls (1 months' progress).
- However, the program did not have any impact, neither positive nor negative, in maths.

Beyond the actual impact, the study highlights the program's limitations as well as those of the program administrators when it came to attracting and retaining the number of pupils the study was designed to involve (1,000), in addition to a significantly high drop-out rate.

The cost of the program, estimated based on what would represent an intervention with 160 pupils at one single centre, would be somewhere in the region of 1,750 euros per pupil. This estimate includes administration, resources and activities (450 euros), salary costs and training (1,070) and food and transport (230).

Gorard, S., Siddiqui, N., & See, B. H. (2014). Future Foundations. Evaluation report and Executive summary. Education Endowment Foundation.

- **Evidence of the impact on gains in math, despite being less solid than in the field of literacy** [9]. Some meta-analysis corroborate the capacity of SLPs to deliver a positive impact in the area of math [5] [7], and some very recent experimental programs have reported very promising results in this area; for example, the Elevate Math [12] program and the Voluntary Summer Learning Program [13].

  Nevertheless, there are other SLPs which were designed to improve math learning but which do not produce significant outcomes; for example, the BELL Summer-Middle [11] and the Future Foundations [14] programs (remember that the latter did however report significant outcomes in the field of linguistics).

- **Limited effects when it comes to improving non-cognitive outcomes (principally, socioemotional, self-esteem and behavioural skills)** [9]. The literature clearly demonstrates the difficulties faced by SLPs in generating relevant impacts on outcomes which go beyond the purely accademic environment. This is especially evidenced in the case of specific programs which integrate activities focused on improving both types of skills, cognitive and non-cognitive skills: for example, the BELL Summer Program [20] or the Voluntary Summer Learning Program [13] manage to improve primary school student outcomes in English language and mathematics, respectively, but not their academic motivation or behavioral self-regulation skills. In the area of secondary education, the Summer Training and Education Program [21] has shown moderate impact on improving reading and math, but no significant effect in the realm of attitudes and practices of risk.

- **Limited effects when it comes to increasing graduation level in secondary education** [9]. These findings refer to SLPs aimed at secondary school students. Thus, programs which might have positive impacts on other academic (or non-cognitive) outcomes experience difficulty in achieving improvements in participants' graduation rates; This is the case of the Upward Bound [22] [23] or the Summer Training and Education Program [21].

SLPs are especially effective when it comes to focusing on linguistic abilities (above all, reading) and, in second place, mathematics skills. However, the programs have difficulties effecting improvement in non-cognitive outcomes or the level of secondary school graduation.

What characteristics do effective SLPs have in common?

What characteristics do effective SLPs have in common? The evidence reviewed allows us to identify the following keys to success:

- **Well-structured programs aligned with standard course curriculum content** [5]. On the whole, the idea is that instruction materials used in SLPs are based on a well-designed and sequenced structure of content and procedures aligned with the scope and levels of skills being addressed. For example, the Summer Reading Camp Intervention [17] program, designed for socially disadvantaged students from Year 1 in primary school, includes instructional units delivered by qualified teachers. These units are structured in such a way as to provide systematic instruction in phonemic awareness, vocabulary, fluency and comprehension. Some of the activities use a basis of approved curriculum materials for learning to read (Open Court Series, 2000).

As in the case of compensatory SLPs (core theme of this review) it is crucial that the materials covered in the instructional sessions are well aligned with the curricular content being "compensated". In the case of preparatory SLPs, the materials covered should primarily be aligned with content and skills students will study in the immediate future [3] [9] [24].

- **Programs in which instructional content is delivered by qualified teachers**, preferably with accredited experience in the material under instruction at the level of students [3] [9]. The evidence reviewed is very clear on this point: SLPs involving specialised teachers function better than those which only employ unskilled professionals or volunteers. Accordingly, the data demonstrates the importance of **teachers receieving specific training and advice** on the type of procedure required for the intervention in the unique context of the summer holidays [8] [24]. The duration and content of this kind of programs can vary.
- **Working with reduced instructional groups,** not exceeding fifteen students, led by qualified teachers and preferably with the help of mentors or teaching-assistants from a diversity of backgrounds (often high school students or college students, or volunteer mentors from the community itself) [5] [9]. The aforementioned scheme appears to be the one which works best in instructional sessions of SLPs, a scheme that applies programs like the Voluntary Summer Learning Program [13], Future Foundations [14] or KindergARTen Summer Camp [19].
- **Combining instructional sessions with enrichment activities** [3] [4] [8] [9]. Almost all the programs which prove to be effective in the academic field offer a combination of instructional activities together with regular activities and activities aimed at enrichment and entertainment. A common program is one in which daily instructional activities are scheduled in the morning (language and/or maths) and leisure and enrichment activities in the afternoon (theatre, crafts, science games, sports and music, day-trips, etc.). For example, this is how the timetables are scheduled in the BELL Summer Program [11], Future Foundations [14] and Summer Reading Camp Intervention (table 2) [17].

  One of the reasons for the success of including enrichment activities within the SLP lies in their ability to enhance student participation by making the program more attractive and stimulating. In this way, the program can attract and retain those students who might stand to gain more in terms of outcomes from the program, especially socially vulnerable students.

Table 2.
Daily timetable of activities for the Summer Reading Camp Intervention program (primary school students)

Activity	Timetable
Instruction in reading	
a) Teacher reads a story	8:00
b) Phonemic instruction (complete group)	8:10
c) Practical lesson-based exercises (individual work)	8:25
d) Reading practice (in pairs)	8:40
e) Guided reading and instruction in comprehension (reduced groups)	8:50
f) Writing (reduced groups)	9:30
Sports activities	10:30
Artistic activities	11:30
Lunch	12:15
Swimming pool	12:45
Weekly theme-based activities	14:00
Video games	15:45
Closing assembly	16:30

Source: Schacter *et al.* [17, p. 162]

- **Include mentoring and individual tutoring sessions within the schedule of activities for the program** [4] [9]**.** This seems an effective ingredient to complement the instructional sessions, improving the prospects of success of programs which seek to bring about a change in attitudes and habits in adolescents. For example, programs like Upward Bound [22] [23] or the LSYOU [25] make academic and individual tutoring one of the principal building blocks of their actions.[2]
- **Involving students' families and the community** in program activities [5] [8] [9]. On the one hand, the objective is to involve families in activities of a specific orientation aimed at improving the educational and personal tutoring processes they involve their children in. Family involvement is essential in the context of "at-home" SLPs, the implementation of which fall largely on the shoulders of the families of participating students [26] [27].

  On the other hand, the evidence demonstrates the importance for the SLP's organising bodies to promote the participation of institutions, resources, services and facilities from the local community, both in the task of raising awareness about the program and recruiting participants, as well as in the design and implementation of some portion of the planned activities.

2 In order to learn more about the effectiveness of mentoring programs and other 1-to-1 tutoring systems, (one student, one tutor) please check out number 2 in the series, What Works in Education?

- **Dosage of activities aligned with program objectives and profile of participating students** [8]. On the whole, studies are in agreement regarding the advantages of setting certain time-related parameters (length of sessions, frequency and overall program duration) which enable the successful delivery of specific quality processes and educational content, while ensuring that students' interest levels remain high. Some studies conclude that the total duration of a SLP should not be less than 80 hours [24]. Other studies find that increasing program dosage is of greater benefit to gains in mathematics than to reading [13]. Overall, SLPs which have proven their effectiveness in experimental studies, whether in improving math or reading skills, tend to have a duration of at least five weeks, five days a week, and schedule daily activities throughout the equivalent of a full school day (intensive or split), devoting around half of that time to instructional sessions.
- **Voluntary programs can be just as, if not more effective than "mandatory" programs** [5]. It must be said that the vast majority of programs evaluated in this review (including meta-analysis and others evaluated more recently) are completely voluntary in nature, both those that have been proven to work as well as those that do not. In addition, there are cases among the so-called "mandatory" programs of successful interventions as well as those which have not proven as fruitful.
- One of the successful cases is that of the Chicago Summer Bridge Program [28] [29]. Started in 1996, this was one of the first programs developed in the United States. Participation is deemed to be mandatory for primary school students who do not exceed a certain threshold of standard performance evaluation (prior to summer) and who seek promotion. Quasi-experimental evaluations of this program have concluded that participation has positive effects on performance in language and math. A similar program, the Summer School Academy, launched in 2004 in the city of New York, has been evaluated using the same quasi-experimental methodology and has also reported similar results [30].
- **Attracting and retaining participation of socially disadvantaged students in programs** [8] [9]. Several studies have documented the difficulties facing many SLPs in attracting the most vulnerable students and, when this has been achieved, ensuring these students complete the program. This is the case for both "mandatory" as well as SLPs of a voluntary nature. One of the basic conditions for encouraging the participation of students from this group is to ensure that programs are cost-free. In fact, all the programs considered in this review are free and the majority even subsidize transportation for students who need to travel in order to attend.

  It is important to bear in mind that students with social deficits are those who most often benefit from the effects of SLPs and that these effects increase when the program is completed in its entirety.

- **Evidence-based programs** [5] [6]. Taking into account the accumulated knowledge with regard to the effectiveness of different types of SLPs when it comes to designing or reforming these programs increases the likelihood of success. Thus, for example the Voluntary Summer Learning Program [13] has encouraged initiatives that take into account the results of research regarding the size of training groups (maximum of fifteen students), the profile of teachers (qualified teachers), intervention dosage (not less than three hours instruction daily, five days a week for no less than five weeks), the combination of instructional sessions with other types of intervention (recreational and enrichment) and general access to the program (free participation and transport). Meanwhile, the design of instructional content of the Summer Literacy Program [18] is aligned with the proposals and best practices guidelines as set out by National Reading Panel (2000) catalogue (Box 2).

SLPs become more effective when they combine reduced group size instruction sessions delivered by qualified teachers with enrichment activities, and when the duration and intensity of the program is tailored to the planned objectives and student profile.

- **"At-home" programs can be effective in improving reading skills, even though the evidence in these cases is not unanimous** [6]. Here we are referring to interventions that help students by providing books, guides and other reading materials so that they can work independently or with the help of parents during the summer holidays. Some of these programs have been effective (for example, the Summer Book Distribution in the state of Florida [31]), and other which have not (Summer Active Reading Programme in the United Kingdom [15]). What if anything, seems to increase the chances of success of these programs is that students (and especially their families) receive guidance and specific guidelines from teachers, referred to as scaffolding, prior to completing the course about how to use and get the most from these readings [26].
- **"Residential" programs seem to be especially suited for addressing non-cognitive outcomes in adolescents (attitudes, habits and practices)** [9]. As such, SLPs that require participants to board during the entire program or part thereof, show greater gains in attitudinal and behavioural outcomes that other SLPs struggle to match. It is important to mention that these non-cognitive outcomes are not achieved to the detriment of other possible benefits in the strictly academic field. Experimental studies on programs of this nature (such as the case of Upward Bound [22] [23] or the LSYOU [25]) attest to this fact.
- **"Preparatory" programs can be just as effective as "compensatory"** SLPs in improving English language and mathematics abilities [4] [9]. Remember that, when we refer to preparatory programs, we are referring to programs which focus on specific content and skills sets recommend or required for accessing certain secondary

"Voluntary" SLPs can be just as effective as their "mandatory" versions, and "preparatory" SLPs have just as much of an impact as "compensatory". "At-home" SLPs are effective when the teachers have managed to instruct and provide orientation to students prior to the end of the course.

Box 2.
Summer Literacy Program (the United States)

In the summer of 2010, a group of researchers from the University of Oregon conducted an experimental review of the impact of a summer learning program organised by the Pacific Northwest school district in the United States. The program had been traditionally targeted to kindergarten and first grade pupils who were at high risk for reading difficulties. The intervention was funded by the Institute of Education Science (US Department of Education), and was designed to be able to follow a 10 page text and test the effectiveness of extending the program to students from the same courses, but to those at moderate risk for reading difficulties. Both the conventional program as well as the intervention subject to evaluation share similar designs using a preventive and compensatory approach.

46 kindergarten students participated in the intervention and 47 first-grade students who were at moderate-risk for reading difficulties, in accordance with the results obtained in standardized tests administered a few weeks before the beginning of the summer holidays. Program activities were delivered over 5 weeks, 4 mornings per week for 3.5 hours per day with sessions consisting of: a) 2 hour of teacher directed instruction delivered by qualified teachers in groups consisting of no more than 20 students, receiving instruction in phonemic awareness, alphabetic understanding, and reading fluency; b) practice reading session in groups of three to five students.

In order to assess the impact from the intervention on the students who were invited to take part (intervention group), two control groups were, one of which was made up of kindergarten students and the other with primary school students, by a process of random assignment. This allowed researchers to were able to design the following final analytical sample for the study: 22 intervention and 24 control students in the kindergarten group, 23 intervention and 24 control students in the primary school group. Finally, the results obtained were compared between the different groups by administering a fresh series of standardized tests to the students at the beginning of the new school year.

This exercise allowed the authors to of the study to determine the existence of positive impact from the program on the outcomes measured. More specifically: a) in the kindergarten course the authors detected a substantially significant impact in the alphabetics domain (+0.69); b) in the primary school students there was also a notable impact for the reading fluency domain (+0.61); c) the study did not find any differential effects of the program depending on the students' socioeconomic backgrounds.

More information available from:
Zvoch, K. & Stevens, J. J. (2013). Summer School Effects in a randomized field trial. *Early Childhood Research Quarterly. 28(19): 24-32.*

U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse. (2013, February). WWC review of the report: Summer school effects in a randomized trial.

or higher education study courses. While it is true that participants in these SLP tend to have a less disadvantaged academic and social profile than that of students enrolled in compensatory SLPs, it is also true that part of the preparatory program is designed to address students with academic deficits, or at least, candidates who are at risk of not progressing to standard in certain areas in future courses. One example of an effective intervention of the latter type can be found in the Elevate Math [12], a program designed by the Silicon Valley Education Foundation and implemented in Santa Clara County (California) since 2012. For 19 days and 4 hours daily, this program prepares students for the algebra they will be facing throughout the second half of their secondary education, and it prioritizes students with moderate level of difficulty in the subject..

Which students have more to gain from SLPs?
Regarding the profile of students who benefit most from these programs, after performing the review we can conclude the following:

- **SLPs benefit student progress of participants who are performing below standard and, especially, socially disadvantaged students (while in the case of the latter, the evidence is not conclusive).** We must take into account that most SLPs, especially those of a compensatory nature, are designed to target primarily students with academic as well as social deficits. This means it is not always possible to distinguish the differential effects these programs may have on what are markedly contrasting student profiles. In any case, the most recent meta-analysis and experimental studies report that more academically and socially vulnerable students are the most sensitive to positive impacts of summer learning programs. [3] [6] [7].
- **SLPs tend to work better among primary school students than among secondary level candidates** [3] [4], **even though the evidence in this area is not conclusive either** [5] [8]. For example, while some of the programs implemented among primary and secondary school students have been more effective among the former than the latter group, (as is the case with the BELL Summer Program [11] [20], see Box 3), other interventions did not show significantly different findings depending on the student's course level (this is the case of the aforementioned "mandatory" program organized by Chicago and New York). The added difficulties that SLPs encounter in the field of secondary education probably have to do with the attitudinal and motivational profile of students to whom these are often addressed.

SLPs are especially effective among primary school students with academic as well as social deficits.

Box 3.
Building Educated Leaders for Life (BELL) Summer Program (United States)

In 2015, 13,300 primary and secondary school students from 21 states in the United States took part in the BELL Accelerated Learning Summer Program. The programme has been fostered by the Building Educated Leaders for Life organisation since 1992 and receives public as well as private funding.

The voluntary program was provided free and targeted to economically disadvantaged primary school students and lower grade secondary school students performing below grade level. The goals of the program are to compensate for these deficiencies and to offset the skills gap resulting from summer loss. Program activities are delivered during regular school hours for six weeks, five days per week and include: a) academic instruction in English Language and math in small groups (10-15 students), provided by qualified teachers with support from mentoring assistants (morning timetable); b) sports, artistic and science activities (after lunch timetable); c) guest speakers and field trips (Fridays).

In 2005, Chaplin and Capizzano (2006) assessed the impact of the program among primary school students using the following study: 1,100 students who applied to participate in the program in New York and Boston were randomly assigned between the treatment group (students who participated in the program) and a control group (non-participants). Doing this, the study examines reading levels, social skills and social skills and parental involvement of the students in the treatment and control groups prior to beginning the program and then once the new school year had begun, and reached the following conclusions: a) the program had a significantly positive impact on students' reading skills (gaining about a months' worth of reading skills by average academic progress standards) and in the degree to which parents encouraged their children's academic progress; b) however, no impacts were found on academic-self perceptions or social behaviours.

More recently, Somers et al. (2015) evaluated the effects of the BELL program among middle school students in three school districts, also implementing an experimental design (1,032 were randomly assigned to either a program group or a control group). The results from this study are less heartening than the finding from Chaplin and Capizzano. Between the lower secondary level students, there was no indication that the program produced any impact on reading skills, nor in their level of academic motivation. The only positive effect, though the magnitude of this effect is not statistically significant, was found in the domain of math skills. This study once again demonstrates the difficulties encountered in attracting students to participate in voluntary summer programs.

More information is available from:

Chaplin, D., & Capizzano, J. (2006). Impacts of a summer learning program: A random assignment study of Building Educated Leaders for Life (BELL). Washington, DC: The Urban Institute.
Somers, M.-A., Welbeck, R., Grossman, J. B., & Gooden, S. (2015). An Analysis of the Effects of an Academic Summer Program for Middle School Students. New York: MDRC.

Are SLPs a cost-effective investment?

Not all impact assessments of SLPs include an economic assessment of the investment they represent, less still include an analysis of cost-effectiveness. With this in mind, we have highlighted the following headlines:

- **The cost of SLPs varies greatly**, depending on the type and dosage of activities, the staff charged with delivering the intervention, whether teaching staff receive any specific training initiatives, the number of students, the infrastructure needed or support services provided (breakfast, lunch, transport, materials, etc.). Drawing on a wide range of studies and sources, McCombs et al. [8] make a provisional estimate that the overall cost of an SLP delivered by qualified teachers, which covers the cost of transport and school meals and, which programs activities for a five-week period, five days per week over a period of six hours per day, might be somewhere in the region of between 1,000 and 2,500 euros per student participating**.**

  The lion's share of the costs involved in these programs tends to be absorbed by staffing costs. For this reason, the cost of "at-home" SLPs can be reduced drastically by somewhere in the region of one hundred euros.

- **Evidence on the cost-effectiveness of SLPs is lacking. T**he conclusions reached by some studies allow us to hypothesize that, given the intensive nature of SLPs and the fact that their delivery is concentrated into a short period of time, they might prove to be more cost-effective than other more structural initiatives (such as for example, reducing the ratio of students during the school year or extending the academic calendar) [29], particularly "at-home" SLPs which produce significant positive impacts [27]. However, at present there are no studies available to corroborate or refute this point.

Some studies indicate that SLPs might be more cost-effective than more structural policies such as reducing class size ratio or extending the school year calendar.

Summary

According to the evidence reviewed, it seems clear that SLPs can benefit the educational outcomes of students. These benefits are more limited in range than other educational interventions implemented throughout the academic year, but they are still significant and remarkable when you consider the short duration of these programs. Moreover, while the students who benefit most from these program are principally those with academic and often social deficits, we can say that SLPs act as a corrective instrument for offsetting the effects of summer loss, and as such, a mechanism for balancing opportunities. However, not all SLPs are equally as effective.

On the one hand, our findings show that these programs are particularly effective when addressing language skills (especially in reading), and secondly, math skills, and the benefits are especially noticeable among primary school students.

On the other hand, our investigation identified certain features that might increase the probability of success of the SLP. These include: 1) a well sequenced structure aligned with standard course content; 2) instructional work in small groups led by qualified teachers who have been trained in the program, with the support of teaching-assistants or mentors with a diversity of profiles; 3) combine training sessions with enrichment and recreational activities; 4) include individual tutoring or mentoring sessions; 5) engage families and the community; 6) dosage in accordance with program objectives and the profile of students; 7) attract and retain academically and socially vulnerable students; 8) program design based on the available evidence. In addition, our findings show that: a) voluntary SLPs can work just as well as the "mandatory" versions; b) "at home" SLPs can be effective as long as they have teacher guidance; c) "residential" SLPs tend to work and be particularly suitable for addressing non-cognitive outcomes in adolescents; d) "preparatory" SLPs produce a potential impact similar to "compensatory" programs, although this is true when dealing with a group of less disadvantaged students; e) SLPs seem more cost-effective than other structural measures implemented during the standard course period.

Taking into consideration these conclusions, Table 3 summarizes the advantages and limitations involved in SLPs and their implementation.

We can speak of SLPs as an instrument for offsetting summer loss, in other words, as a mechanism for equalling opportunities. At the same time, not all SLPs produce the same level of effectiveness.

Table 3
Arguments for and against SLPs

For	Against
Both voluntary and mandatory SLPs can have a positive impact on students' performance	Evidence is lacking regarding the impact of these programs beyond the short-term
Combining instruction and enrichment activities increases the chances of success of programs	This combination demands certain space and facilities which are not always readily available
There is solid evidence of the impact of these programs in the area of reading and promising signs regarding math	The impact on non-cognitive outcomes tends to be limited or non-existent
The most effective programs employ qualified teachers and mentors, work with reduced group sizes and are of a relatively intensive dosage	The cost of the most effective programs can be high (volume of hours specialist teachers devote and student/teacher ratio)
SLPs improve their chances of success when teachers and assistants have been provided with specific training for the program	Training activities for teachers and assistants can imply significant economic and administrative costs
Programs become more effective when they are designed in relation to standard educational curriculum	The programs implemented outside school time may encounter obstacles adapting to the specific content of each school course and centreespecífics de cada curs i centre educatiu
SLPs are especially effective among socially disadvantaged primary school students with learning difficulties	SLPs appear to have less effectiveness in secondary school education
Effectiveness of SLPs improves when they are successful in attracting and retaining socially vulnerable students to the program	At risk students meet with objective (direct cost or opportunity cost) or subjective barriers (lack of information or motivation) to participation
Promising evidence exists to show that SLPs are a cost-effective incentive compared with other structural measures implemented during the school year	This evidence is still very limited
"At-home" SLPs can be effective when they involve guidelines from teachers	Teacher mentoring must be performed just prior to the completion of the course when teacher's workloads already tend to be overloaded
"Residential" SLPs can benefit non-cognitive outcomes among adolescents	The boarding element of these programs may imply significant economic and administrative costs
"Preparatory" SLPs can be just as effective as "compensatory" SLPs	Students participating in "preparatory" SLPs tend to come from a more advantageous academic and social background than those students who enrol in "compensatory" SLPs

Font: prepared by the authors

Implications for practise

Until there is a profound rethinking of the school calendar in Catalonia, which among other issues, addresses the holiday period currently concentrated in the summer, it seems that SLPs are destined to become an instrument of great importance in the fight against school drop-out rates and educational inequalities. Judging by the results of this review, we could conclude that SLPs are capable of fulfilling this role; at least in part.

Indeed, the success of SLPs is not always guaranteed. The outcome depends on whether or not they take into account a number of features or traits concerning content, methodology and procedure, which can make a difference.

From the considerations and findings outlined in the foregoing section, we can derive four implications for the design and practice of SLPs in Catalonia:

- **Voluntary SLPs of a compensatory nature should be consolidated and extended** for primary school level students, but also mandatory SLPs for secondary students. In any case, these should prioritize students with academic and social disadvantages. In the case of secondary school students who present behavioural issues, it would be crucial to involve intensive mentoring services and one-to-one support in order to complement the "regular" SLP activities.
- **It is necessary to ensure that SLPs are made available to socially disadvantaged students.** As previously mentioned, this is the student profile which can encounter economic or subjective obstacles (lack of information or motivation) to participate in these programs. To overcome these obstacles, access to SLPs should be guaranteed to be free as well as offering services such as free transportation and dining facilities. Other actions might include improving the dissemination of programs, particularly those of a voluntary nature by involving schools and local services and authorities in the process.
- **In any case, the design of SLPs should take into account the success factors mentioned above, a**mong others, to combine a well-structured instructional curriculum with enrichment and cultural activities, opting for working in small groups instructed by qualified teachers with the support of mentors and teaching-assistants, and to have a duration close to five weeks and a daily commitment similar to that of a full school day.
- **At the same time as we undertake to ensure that the design of SLPs in Catalonia draws on international evidence, we must also insist on the need for programs to be evaluated.** Only then will we know how these programs function in our immediate environment, what the global impacts are, which components are more effective, which student profile benefits most, and from this point we can discern the scope for improving and innovation within the programs.

We recommend: a) extending voluntary SLPs of a compensatory nature, guaranteeing the participation of academic and socially disadvantaged children; b) basing the design of SLPs on the success factors outlined and to evaluate their impact in Catalonia.

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