Review

Summer Reading Program: A Systematic Literature Review

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Abstract: This article is a systematic review of summer reading programs from 2012 to 2021 and provides a synthesis of 16 articles on summer programs in children from prekindergarten through Grade 8 together with several individual and environmental characteristics (e.g., socioeconomic status, the language of learning, reading and/or behavioral disabilities). Compared to a control group, most studies have shown improvements, or at least no loss, in reading and writing skills and social behaviors. This is the reason why the programs are designed to incorporate a holistic approach to child development and are increasingly used in preparation for the next grade. Furthermore, this article highlights the heterogeneity of the intervention programs in terms of duration (2 weeks to 8 weeks), parental involvement (involved or not in literacy development) and type of intervention (at home vs. at center/school). Finally, the effectiveness of the programs is considered and the characteristics of and tips for successful programs are indicated.

Keywords: systematic review, summer program, children, literacy, summer loss

1. Introduction

Academic achievement remains an important topic for education policy; it is linked to literacy and reading skills. Summer is a pivotal time in the development of both reading and numeracy skills in children. Summer learning loss has been documented for more than 40 years (e.g., Bell & Carillo, 2007; Cooper et al., 1996, 2000; Davies et al., 2015; Davies & Aurini, 2013; Kim & Quinn, 2013; Lauer et al., 2006; Meyer et al., 2017; Sobeck, 2017). Extended school years with learning programs have been introduced in order to minimize the loss of or even maintain acquired academic knowledge. Programs that seek to maintain or improve children's academic knowledge often focus on reading and literacy skills. Various literature reviews and meta-analyses have identified these programs and their effectiveness, as well as child-related and environmental factors that impact their effectiveness. This article is a systematic narrative review of the literature on summer programs conducted over the last ten years to promote literacy skills in children from prekindergarten to Grade 8. This paper aims to provide a current systematic narrative review of the available research on summer reading programs and their effects. To do so, we first develop the concept of summer loss, then remind the reader of the main literature reviews and meta-analyses from 1996 to 2013. Finally, we present our search method for selecting studies that have examined a summer program using a quasi-experimental method (i.e., with a control group). Furthermore, we have tried to identify in our systematic literature review the nine characteristics (Bell & Carillo, 2007)

and nine tips (Sobeck, 2017) for successful summer programs.

1.1 *Summer loss*

The concept of "summer loss" refers to a loss of academic knowledge during the summer. This loss of knowledge varies according to individual child-related and environmental characteristics (see Downey et al., 2004; von-Hippel et al., 2018). The academic knowledge of pupils with special educational needs (e.g., reading difficulties; behavioral problems) or who speak a language other than the main language used at school may decline due to a lack of practice (Cooper et al., 1996; Davies & Aurini, 2013; Kim & Quinn, 2013; Meyer et al., 2017; see also von Hippel et al., 2018 for a longitudinal study). Students' gender or race does not seem to impact on this loss of knowledge (Cooper et al., 1996), but summer loss increases as students' academic level progresses. Finally, students' socio-economic level has a major influence on the maintenance and loss of knowledge. Indeed, students from more advantaged areas seem to improve on school-level equivalent reading knowledge tests during the summer, while students from disadvantaged areas decline. This loss can be the equivalent of up to 3 months. Cooper et al.'s meta-analysis (2000) of summer school results indicates that children from disadvantaged backgrounds benefited somewhat less from summer school than their middle-class counterparts, but their results also suggest that remedial programs are generally effective in improving student outcomes.

More recently, von Hippel et al. (2018) conducted a longitudinal study lasting from 2010 to 2013 on a large cohort of 17,733 children to replicate Downey et al.'s study (2004), which examined the extent to which schools can equalize reading and mathematics skills. The original study of Downey et al. concluded that (1) inequality in reading and math was greater between the beginning of kindergarten and the end of Grade One; (2) inequality increased more rapidly during summer than during the school year. When the test scores were recalculated to compare the cognitive skills of children as a function of their age and a new cohort was used by von Hippel et al., the first of their conclusions was no longer valid. Indeed, inequality did not increase, but decreased between the beginning of kindergarten and the end of Grade One, and also decreased between children of different socioeconomic statuses, races and ethnicities. This does not mean that inequality disappears but that it emerges at a different stage of development. Inequality during summer did not increase as a function of Grade but as a function of socioeconomic status. Finally, no clear racial or ethnic effects were observed in the above study. Research revealed different forms and levels of summer loss, and these were explained in different ways. The question which then arose was how to prevent this loss. The answer took the form of summer programs.

1.2 *Summer program*

Summer programs are out-of-school interventions involving different actors: children, parents, educators, teachers and communities, for example. Summer programs to address learning deficits can be grouped into four categories (Cooper et al., 2000):

1. Help students obtain the skills they need to move on to the next school year;

2. Review concepts not understood during the school year and help students achieve the necessary level of proficiency;

3. Allow children with disabilities to benefit from the instruction;

4. Provide a setting for academically gifted children to further develop their skills.

In our literature review, we will focus on the first two categories.

Cooper et al. (1996) proposed a literature review combined with a meta-analysis covering the period from 1975 to 1994. This review identified 39 studies examining the effect of summer slides on the retention and acquisition of academic knowledge (i.e., math, spelling, vocabulary, reading, literacy) in children in Grades 1-9 before 1975 (26 studies) and kindergarten through Grade 9 after 1975 (13 studies). Results have shown that children appeared to have made no academic progress over the summer or to have lost one month of grade-equivalent skills relative to national norms. Furthermore, according to this review, grade influences this loss during the summer, with the critical grade being Grade 4. In a narrative literature review, combined with a meta-analysis of the evaluation of the effect of the summer school on academic skills (i.e., math, reading) in children and adolescents (i.e., kindergarten to Grade 12), Cooper et al. (2000) identified 93 studies covering the period from 1967 to 1998. The results have shown that programs with a

clear purpose have a positive impact on participants' knowledge and skills, and this is particularly true of programs that are intensive or have a remedial aim. All the students included in this review benefited from the summer program. The review also found that students with average socioeconomic status benefited from greater positive effects than students with low socioeconomic status. Furthermore, remediation programs may have more positive effects on math than on reading. Parental involvement is also required and thought to boost the effectiveness of the programs. Finally, summer programs have the greatest positive impact on children in the elementary and secondary school.

Lauer et al. (2006) presented a meta-analysis of out-of-school programs conducted specifically for at-risk students from kindergarten to Grade 12 over the period 1985 to 2003. They identified 35 programs (a combination of after-school and summer vacation programs) that addressed math and/or reading skills. The authors examined studies that had included a control group. The results showed that the programs had beneficial effects on at-risk students, particularly those with low socioeconomic status, in both math and reading skills. In addition, like Cooper et al. (2000), grade level moderated the beneficial effects of out-of-school programs. For reading, the effect size was the highest in the early elementary and secondary Grades; for math, the effect size was the highest for middle and high-school students. The results for reading support the importance of early intervention for students learning to read.

Kim and Quinn (2013) conducted a meta-analysis of summer reading programs covering the period from 1998 to 2011 among students with low socioeconomic status from kindergarten to Grade 8. The authors identified 41 summer reading programs that were conducted either in the classroom or at home. The results showed that the programs had a beneficial effect on children with low Socio-Economic Status (SES). This result is clearly in line with those of the previously cited reviews. Moreover, taking into account two types of intervention (i.e., school-based or home-based) allowed the authors to identify the essential components of program success. For example, when the programs take place in the classroom, the teacher's research-based instruction approach has a beneficial effect on reading retention and acquisition. For home-based interventions, the quantity and quality of book reading initiated by the child is the key mechanism for promoting reading success. However, the two interventions (i.e., school-based or home-based) have a similar effect on reading outcomes. In addition, the intensity and duration of the programs influence reading outcomes. Indeed, the five intensive, small-group programs, with between 4 and 8 hours programmed per day or between 70 and 175 hours in total, had a positive effect on reading scores, whereas the studies that did not use an intensive program had no effect on reading scores.

These four literature reviews have identified environmental (e.g., socio-economic status, parents' involvement) and child/program-related (e.g., academic level, at-risk; clear objective, intensive program, type of interventions) factors in the effectiveness of summer programs, with special reference to the domain of reading skills. Before presenting our systematic review of the literature, we discuss the criteria for successful summer programs identified by Bell and Carillo (2007) and Sobeck (2017).

1.3 *Program characteristics*

The diversity of the programs reported in the literature underlines the importance of identifying the characteristics of those that are effective for young people. Thus, nine characteristics divided into two categories have been identified (see Bell & Carillo, 2007): the first refers to the approach to learning adopted by the program and combines the educational and developmental fields; the second refers to the role of the program infrastructure. These characteristics refer more to the nature of the program itself than to its content.

According to Bell and Carillo (2007), summer programs must adopt a developmental approach to learning which involves:

1. An emphasis on accelerating learning.

2. A strong commitment to youth development.

3. A proactive approach to summer learning.

In addition, the program infrastructure plays a critical role in ensuring the effectiveness and quality of the program. The program will need to:

4. Have strong and empowering leadership (e.g., decisions, management which creates a climate conducive to exchange and collaboration).

5. Implement advanced and collaborative planning (i.e., six months before the beginning of the program).

6. Offer ample opportunities for staff development.

All of this must be underpinned by:

7. Strategic partnerships (i.e., all actors understand their role and the objectives of the program).

8. A rigorous approach to evaluation and a commitment to improving the program (e.g., monitoring of the program's efficacy).

Finally, programs will need to closely address:

9. Sustainability and cost-effectiveness (i.e., be able to address current and future needs).

More recently, Sobeck (2017) also identified 9 tips for a successful extended school-year program for children with disabilities. These tips identify what teachers should do to make a program for children with difficulties effective. Working with children with difficulties can be intimidating. Thus, having clear guidance is an asset not only for teachers, but also for the researchers and educators who participate in and implement these programs.

According to Sobeck (2017), it is necessary to:

1. Have a child-specific document indicating each child's difficulties and making it possible to follow his or her progress (e.g., an electronic document for simple updating and printing);

2. Set up a schedule to collect observations on the children's behaviors (e.g., behaviors towards adults, towards other children, and in class).

This requires:

3. communication time with paraeducators;

4. teaching in small group learning centers,

5. clarification of the role of paraeducators (e.g., attitudes and expected behaviors that may vary throughout the program).

Programs should propose:

6. clear lessons with a specific goal (e.g., improving phonemic awareness, vocabulary, etc.).

In addition, the establishment of

7. routines with social interaction and physical activity will provide a framework and ensure a comprehensive approach to child development.

Finally, the programs should allow for

8. data collection over the course of 4-5 weeks (usually) with different measurement times to study the evolution of the children's progress.

To summarize, programs must take account of the child's global development (that is, in various areas) by setting clear objectives. It must be able to motivate children in their learning. In addition, the staff will be crucial in implementing the program, which can be a challenge since this will involve seasonal employees. In addition, all program contributors must be aware of the importance of the program for the development of the child's skills, as well as their roles and responsibilities in ensuring the success of the program.

2. Objective and literature searches

In this article, we update the available knowledge about summer literacy programs for children by examining programs conducted from 2012 to 2021 following the recommendation of a systematic review approach (Booth et al., 2016). In order to determine the effectiveness of the programs, we decided to consider only those articles that referred to the presence of a control group. We present all of the examined articles in light of the various characteristics of a successful program identified by Bell and Carillo (2007) and Sobeck (2017).

In May and June 2021, we ran a three-stage search in education, psychology and humanities and social science databases (e.g., ERIC, PsychINFO, PsycArticles, Sociology Source Ultimate, Gale Academic/General/Business, Spring Nature Journals, etc.). First, we entered the following keywords to retrieve citations: *"summer school", summer learning, summer program, child*, literacy or reading or reading skills or literacy skills*. We limited our search to English articles published in peer-reviewed journals from 2012 to 2021, with the requirement that at least one of the search terms be presented in the manuscript. This first search yielded 844 articles. Based on this first search, we then limited our search to the following topics: *education, academic achievement, literacy, reading, education programs, reading comprehension and summer school*. This second search yielded 220 articles. After carefully reading all the

abstracts, we identified 62 articles mentioning summer school programs. After reading these 62 articles, we extracted 16 that clearly tested the effect of summer programs relative to a control group in children (see Table 1 for a summary of the main characteristics of these studies). Unfortunately, the outcomes reported in these studies are not in a comparable format, (i.e., different experimental design, different analyses, and absence of effect size), consequently, we provide a narrative and tabulation synthesis (p. 52, Booth et al., 2016).

Table 1. Main characteristics of the 16 studies extracted from the systematic literature review from 2012 to 2021

Authors	Year	Location	Sample Size (treatment group)	Grades	Student characteristics	Outcome measures	Program duration	Effect
Rafferty	2012	Northwestern USA	15 (4)	Grade 2	Emotional and behavioral disabilities at risk or some risk	Oral reading fluency Self-monitoring strategy	4 weeks	All positive
Sinatra & Eschenauer	2012	New York (USA)	116 (81)	Grades 3, 4, 5, 6, 7, 8	Homeless children	Writing, spelling, vocabulary, self-perception and attitudes, tennis proficiency	4 weeks	Mostly even
Zvoch & Stevens	2013	Pacific Northwest (USA)	93 (30)	KG Grade 1	Moderately at-risk samples of struggling readers	Oral reading word and non-word fluency	5 weeks	All positive
White et al.	2014	North Carolina (USA)	1188 (395/397)	Grade 3	-	Book reading, reading comprehension, reading preferences	-	Mostly Even
Pears et al.	2014	Pacific Northwest (USA)	39 (25)	Incoming KG	Low income	Self-regulatory skills, letter naming, phonemic awareness, understanding of concepts about print, social skills	8 weeks	Mostly positive
Siddiqui et al.	2014	NE London (UK)	197 (60)	Grades 4 and 5	Low income Below grade level	Sentence structure, punctuation, vocabulary, spelling, writing and comprehension	4 weeks	Mostly negative
Hart et al.	2016	Florida (USA)	46 (24)	Incoming KG	Behavior problems Low income	Literacy skills Social skills Behavior problems	4 weeks	Mostly even
Zeng et al.	2016	Northwestern (USA)	92 (45)	Grade 4	At risk for behavior problems Below grade level	Literacy and reading skills Social skills Behavior problems	5 weeks	Mostly positive
Christodouolou et al.	2017	Cambridge (USA)	47 (23)	Grades 1, 2 and 3	Reading disabilities/ difficulties	Symbol imagery, single word and pseudoword reading, oral reading fluency	6 weeks	Mostly positive
Kraft & Monti-Nussbaum	2017	Rhode Island	232 (118)	Grade 1 to 4	-	Reading comprehension, vocabulary, word recognition, reading speed, Literacy skills	-	Mostly even
Xu & de Arment	2017	USA	61 (26)	Incoming KG	Low Income	Name writing, uppercase recognition, print and word awareness, rhyming awareness	6 weeks	Mostly positive

Zvoch & Robertson	2017	Pacific Northwest (USA)	48 (24)	Incoming Grade 1	At risk Below grade level	Letter naming fluency, nonsense word fluency, phoneme segmentation fluency	5 weeks	Mostly positive
Beach et al.	2018	Southeastern United States	59 (32)	Incoming Grades 2 and 3	Low income Hispanic and Black students Struggling readers	Phonemic awareness, decoding skills, oral reading	2 weeks	Mostly even
Gettinger & Stoiber	2018	Wisconsin (USA)	29 (8/7/8)	Pre-K	Low income	Alphabet knowledge, phonological awareness, vocabulary	8 weeks	Mostly even
Nicholson & Tiru	2019	Auckland (NZ)	72 (36)	Pre-K, KG Grades 1, 2, 3, 4, 5	Low income	Phonemic awareness, spelling, accuracy and comprehension, word reading	3 weeks	Mostly positive
McCormick et al.	2021	Boston (USA)	323 (164)	Incoming KG	Low income White-Non White Dual Learning language	Vocabulary, and numeracy skills	-	Mostly Even

Notes: USA = United States of America; UK = United Kingdom; NZ = New Zealand; KG = Kindergarten; Pre-K = pre-kindergarten. All studies used pre-post tests and group comparisons. The "-" indicates that the information was not mentioned in the study

3. Synthesis of the studies and discussion

3.1 *Overview of the studies*

Our literature search identified sixteen studies with a quasi-experimental pre/post-test design which included a control group. These differed on population characteristics, duration, and program content. The studies (Table 1) offered summer reading programs to children at risk or at some risk of reading difficulties (Beach et al., 2018; Christodoulou et al. 2017; Rafferty, 2012; Siddiqui et al., 2014; Zeng et al., 2016; Zvoch & Stevens, 2013) and behavioral problems (Hart et al, 2016; Rafferty, 2012; Zeng et al, 2016) or to low-income children (Beach et al., 2018; Gettinger & Stoiber, 2018; Hart et al., 2016; McCormick et al., 2021; Nicholson & Tiru, 2019; Pears et al., 2014; Siddiqui et al., 2014; Sinatra & Eschenauer, 2012; Xu & de Arment, 2017; Zvoch & Robertson, 2017). The programs ranged from 2 weeks to 8 weeks over a period of several years (i.e., longitudinal studies; Kraft & Monti-Nussbaum, 2017) or just for one summer and were administered to children in different grades (Christodoulou et al. 2017; Gettinger & Stoiber, 2018; Nicholson & Tiru, 2019; Rafferty, 2012; Siddiqui et al, 2014; Sinatra & Eschenauer, 2012; White et al., 2014; Zeng et al., 2016; Zvoch & Stevens, 2013), or were used to prepare for the coming grade (Beach et al., 2018; Hart et al., 2016; McCormick et al., 2021; Pears et al., 2014; Zvoch & Robertson, 2017; Xu & de Arment, 2017). Thus, we have structured the narrative description of these studies according to their experimental design. In the first part, we discuss summer programs according to short-term effects in cross-sectional studies. Then, we focus on the same type of study that has the specific objective of preparing for schooling or the next school grade. Then, we describe the long-term effect of summer programs in a longitudinal study. We finish by discussing the criteria for success in summer programs identified by Bell and Carillo (2007) and Sobeck (2017).

3.2 *Short-term effect of summer reading program in cross-sectional studies*

In this section, we describe the different interventions proposed in the studies in chronological order, together with the effects obtained. We highlight the heterogeneity of the programs implemented over the last decade.

Rafferty (2012) presented a study of the effect of self-monitoring strategies with a tactile prompting device delivered during a summer reading program on oral reading fluency and behavioral tasks in 4 Grade-2 children with emotional and/or behavioral disorders. The children received the intervention in a small group setting. They counted the number of words correctly read. In addition, the authors assessed how well the children were able to use these strategies

at the class level. They measured children's behaviors (sitting at a desk, listening to the teacher, participating, taking notes) and oral reading fluency. The intervention was beneficial for all the children. And they applied themselves well to the tasks and their oral reading fluency performance improved. In addition, the intervention allowed the children to achieve similar task scores to the control group. This study provided promising results regarding interventions specifically designed for children with behavioral and emotional disorders. However, as noted by the authors, the very small sample size did not make it possible to generalize the results.

Sinatra and Eschenauer (2012) reported an innovative study on the effect of a summer program on homeless children and adults. As our literature review focuses on children, we will only present the results for the former. Different age-adapted activities were carried out for 4 weeks with children from Grades 3 to 8 (literacy, mathematics, robotics, biology, chemistry, tennis, etc.). The results showed that the control group performed better in vocabulary than the experimental group in both the pre- and post-test. Moreover, there was no difference in the gain in vocabulary and spelling skills between the groups, except in the writing task (Cohen's d = 0.97). Thus, writing practice led to an improvement in writing skills in this population.

Zvoch and Stevens (2013) examined the effect of assignment to and participation in a 5-week summer program for 30 kindergartens and Grade-1 children moderately at the risk of developing reading difficulties. The intervention consisted of 3.5 hours of small-group instruction in the phonemic awareness and reading fluency per day, 4 days per week. Three groups were formed: the first group consisted of children who were assigned to and participated in the summer program, the second group consisted of children who were assigned to and refused to participate in the program, and the third group corresponded to the control group. The results showed that children in kindergarten and Grade-1 who participated in the program performed better in reading than those in the control group (with a Hedges' g effect size = 1.17 and 1.03, respectively), with no difference being observed between the control group and the groups of children who declined to participate in the program. In addition, an Intent-to-treat analysis comparing children assigned to the program (those who participated or refused vs. the control group) showed that the oral reading fluency performance improved with an effect size of 0.60 for the kindergarten and 0.78 for Grade-1 children. The authors also found a loss of oral reading fluency performance in the children who did not participate in the summer program.

White et al. (2014) examined the effect of poverty on the participation in teacher-led summer reading programs among a large cohort of children. The intervention consisted of reading books appropriate to the children's age and interest and providing comprehension-based lessons. Children were randomly assigned to a control group or to one of two treatment groups (teacher lessons + summer book reading; or teacher lessons + summer book reading + a summer teacher telephone call). The results showed no effect of the intervention, nor did they vary by the type of lesson. However, the authors did find an interaction effect between the type of intervention and school poverty. While the effect of the intervention was positive for very poor schools (d = 0.08 and 0.11), the effect was negative for less poor schools (d = -0.11 and -0.12). School poverty seems to be an important factor to consider when assessing the effectiveness of such programs.

Siddiqui et al. (2014) investigated the extent to which a 4-week summer program could reduce summer learning loss, develop children's literacy and math skills and confidence, and also contribute to parental involvement in their children's learning in Grade 4 and 5 children. Literacy lessons focused on sentence structure, punctuation, vocabulary, spelling, and comprehension and were conducted in small groups. Results showed no gain in literacy for children in Grade 4, and a loss for children in Grade 5 (effect size = -0.14 in reading and -0.27 in writing). Surprisingly, the program did not appear to prevent the loss of knowledge in the younger children. The authors point out that this was a pilot study with a small sample (60 children). Moreover, the involvement of the parents and mentors is not clear and it is possible that they tried to imitate the teachers. Their role in learning should be clarified.

Zeng et al. (2016) examined the effectiveness and feasibility of a summer program for 45 Grade-4 students are at the risk of developing emotional and behavioral disorders. The intensive literacy program of 2.5 hours per day was provided to both the experimental and control groups for 5 weeks. The experimental group participated in activities related to social-emotional learning (e.g., self-regulation skills, peer interaction, emotional regulation, conflict resolution strategies). Results showed that the literacy performance of both groups improved (effect size ranging from 0.43 to 0.60 depending on the literacy skill measured - comprehension, word and letter reading, reading), with no differences between the two groups. However, the social-emotional skills of the children in the experimental group improved while those of the control group remained constant or decreased. This study reinforces the idea that learning is

multidimensional and this insight should be taken into account in summer programs.

Christodoulou et al. (2017) reported a 6-week intensive summer reading program for 47 children with reading difficulties in Grades 1-3. The intervention consisted of 4 hours of curricular reading activities per day, adapted to grade level, and delivered in small groups (3-5 children) by a teacher over 5 days. The intervention focused on teaching phonological and orthographic awareness, sight word recognition, and comprehension. Researchers compared the results from tests of symbol imagery, single word and pseudoword reading (timed and untimed), and oral reading fluency among children who participated in the program and children in the control group. Pre- and post-test comparisons with the control group showed that whereas the scores on timed ($d = 0.19$) and untimed word ($d = 0.96$) and pseudoword ($d = 0.87$) reading remained unchanged in the intervention group, they decreased significantly in the control group. The symbol imagery scores of the intervention group improved ($d = 1.32$), and those of the control group declined. Finally, the intervention group showed improved oral reading fluency ($d = 0.76$), with no change in the control group. This program had a high effect size.

Gettinger and Stoiber (2018) studied the effect of shared book reading on letters and sounds versus vocabulary in 29 low-income, pre-kindergarten children. The 8-week program offered 4 types of interventions to which children were randomly assigned in small groups for 3 hours and 15 minutes per day over 5 days. The interventions were differentiated by the extent to which the teacher focused on print (code-focused interaction), on vocabulary (meaning-focused interactions), on both, or neither (control group). The researchers selected 12 books between 25 and 30 pages in length and compared pre- and post-test scores of print knowledge, phonological awareness, and vocabulary. For each type of intervention, there was a significant positive difference between pre- and post-test scores (Hedges' g - effect size - between 1.12 and 4.19). Between-group comparisons showed that, in general, children who received the interactive code-focused intervention had better scores on the reading tests than those in the control group or those who received the interactive meaning-focused intervention. However, they did not differ from the group that received both interventions. Moreover, children who received the interactive meaning-focused intervention or both interventions scored better on the vocabulary tests than those who received only the interactive code-focused intervention and the control group (with no difference between the latter two).

Nicholson and Tiru (2019) examined the effectiveness of a 3-week summer school for children from low socioeconomic status families. The authors found that the summer loss was around 5.8 months, which is much higher than the initial three months reported in the meta-analysis by Cooper et al. (1996). The program involved one-on-one tutoring in phonetic explicitness with a teacher, frequent word reading and age-appropriate text reading. For the experimental group, the results of the analysis of the pre/post-test comparison showed gains in spelling skills, phonemic awareness, decoding, text reading accuracy, and word reading (with effect sizes ranging from $d = 0.93$ to 2.00). Furthermore, participation in the program improved children's word-reading performance ($\eta^2 = .06$). Otherwise, the effects were similar as a function of children's age. Instead of proposing a small group or class intervention, this program involved a one-to-one tutoring approach, which allowed children to progress as a function of their capabilities and difficulties.

3.3 *Short-term effect of the reading program involving cross-sectional studies specifically for preparation for schooling or the next school grade*

Pears et al. (2014) examined the effect of a summer program on early literacy, social, and self-regulation skills in children from low-income families who were not ready to enter school. The program offered sessions for parents to increase their involvement in their children's learning. The experimental group showed better results for letter naming ($\eta_p^2 = 0.12$), initial sound fluency ($\eta_p^2 = 0.26$), and comprehension of concepts related to writing ($\eta_p^2 = 0.49$) than the control group, in which performance remained stable or even declined slightly. In addition, children who received the intervention became slightly less aggressive toward their peers ($\eta_p^2 = 0.03$) and exhibited a greater ability to self-regulate their behaviors ($\eta_p^2 = 0.32$). Interventions intended to improve academic and social skills hold promise for reducing summer loss and preparing children for school.

Hart et al. (2016) evaluated two programs designed to prepare children with behavior problems for the transition from pre-kindergarten to kindergarten. Children were randomly assigned to either the group receiving a highly intensive 4-week summer program or the group receiving a low-intensity program. The high-intensity program prior to the start

of kindergarten included weekly parent workshops, a monthly school consultation, and parent workshops throughout kindergarten. The low-intensity program included only weekly parent workshops. Program feasibility, child progress, and parent satisfaction were measured. Emergent academic literacy and math skills were measured using vocabulary, letter naming, sound identification, and counting tasks. Parents in the high-intensity group participated more in the workshops than parents in the low-intensity group. Compared to children in the low-intensity group, those in the high-intensity group showed improved behavior, with less disciplinary action (d = 0.47) or out-of-school suspensions (d = 0.46), as well as better academic skills (d = 0.37 - combined literacy and numeracy skills). This study strongly involved parents in their children's learning and concluded that when parental involvement is accompanied by a specific program with teachers, the children show improvements in terms of both behavior and academic achievement.

In children moderately at the risk of developing reading problems when entering Grade 1, Zvoch and Robertson (2017) examined the extent to which the assignment to and participation in a 5-week summer program could improve literacy skills (letter naming fluency, nonsense word fluency, phoneme segmentation fluency). Compared to the control group, children who participated in the program performed better in phoneme segmentation fluency (Hedges' g = 0.78), while the control group suffered from a loss of skills. There were no significant differences in the letter naming fluency and nonsense word fluency tasks. Xu and de Arment (2017) investigated the effect of an intensive 6-week summer program on early literacy among children from low socioeconomic status families entering kindergarten. Results suggest that an intensive summer program is effective in improving language and literacy skills, including oral, phonemic awareness, and writing skills, as well as alphabetic knowledge.

Beach et al. (2018) examined the effect of 2-week summer programs on reading skills in black and Hispanic children with reading difficulties from low-income families. The program took place during the transition from Grade 2 to Grade 3 and provided 15 hours of practice in decoding, sight word reading, and reading fluency, accompanied by teacher instruction. Results showed that children entering Grade 3 improved significantly on word reading (d = 0.23) and reading fluency (time, d = 0.27; and accuracy, d = 0.33), while children entering Grade 2 improved on reading fluency (time, d = 0.17), even though their phonemic awareness performance declined (d = -0.23). Finally, there were no significant differences between children who participated in the program and those who did not. However, the results were mixed and it should be remembered that the program was very short: 15 hours spread over two weeks.

More recently, McCormick et al. (2021) examined the extent to which the attendance at a drop-in center (linked to a state school or a community-based organization) could reduce summer loss before kindergarten entry as a function of socioeconomic status, race/ethnicity, and dual-language learner status over a two-year period. To do this, researchers examined the trajectories of reading and math skills of 323 children over the summer as a function of environmental and individual factors. These skills were measured four times: the fall and spring of the prekindergarten year and the fall of kindergarten and the spring of the kindergarten year. Parents were also asked to complete an online questionnaire about their children's health, where the children spent the holidays (in a center or not) and whether a summer program was in place in the center or not. Early literacy skills were measured: vocabulary, language test battery and math problem-solving. The results showed that white children who had been in center-based care during the summer were the only ones to exhibit improved language skills. More specifically, language skills improved faster in high socioeconomic status children who participated in center-based care than in their peers who did not participate in a program. Low-income children who attended center-based care during the summer showed slower growth in language skills than low-income children who did not attend center-based care. The effect of the summer program proposed in the centers was mixed, however, and the authors noted that no children experienced summer learning loss. In addition, the authors pointed out that their sample was likely to be more advantaged than the wider population. This is because the access to programs is different according to children's race/ethnicity or household income.

3.4 *Long-term effect of summer reading programs in longitudinal studies*

Most of the studies included in our article were cross-sectional studies involving one or more years of observation, and only one of them employed a longitudinal design that followed the children over several summers. This is probably due to the fact that such studies are difficult to set up and the interest in summer programs is quite recent. Furthermore, the results of a longitudinal study cannot be published until the final measurement has been taken, thus considerably lengthening the time between the beginning of the study and its publication.

Kraft and Monti-Nussbaum (2017) reported on a 2-year longitudinal study (September 2014 to June 2016) which

examined the effectiveness of parent-taught literacy development at home. A guide divided into 18 texts was provided for parents to promote literacy skills in children in Grades 1-2 and 3-4. The scripts allowed parents to suggest literacy activities as well as other enrichment activities. Parents were asked to encourage their children to read, or to read stories to their children themselves. The results showed a beneficial effect of the program on reading comprehension for children in Grades 3 to 4 only. In addition, the authors noted that this type of program maximized the interaction between parents and teachers. Thus, parental involvement appears to be important in children's literacy development.

Table 2. Presence of characteristics of a successful program in studies, based on Bell & Carillo's (2007) characteristics

Authors (years)	Intentional focus on accelerating learning	Firm commitment to youth development	Proactive approach to summer learning	Strong, empowering leadership	Advanced, collaborative planning	Extensive opportunities for staff development	Strategic partnerships	Rigorous approach to evaluation and commitment to program improvement	Clear focus on sustainability and cost-effectiveness
Rafferty (2012)	-	YES	YES	-	YES	-	-	YES	YES
Sinatra & Eschenauer 2012	YES	YES	YES	YES	YES	YES	YES	YES	YES
Zvoch & Stevens (2013)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Pears et al. (2014)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Siddiqui et al. (2014)	YES	YES	YES	YES	YES	YES	YES	YES	YES
White et al. (2014)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Hart et al. (2016)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Zeng et al. (2016)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Christodoulou et al. (2017)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Kraft & Monti-Nussbaum (2017)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Xu & de Arment (2017)	YES	YES	YES	YES	YES	YES	-	YES	YES
Zvoch & Robertson (2017)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Beach et al. (2018)	YES	YES	YES	YES	YES	YES	-	YES	YES
Gettinger & Stoiber (2018)	-	YES	YES	YES	YES	YES	YES	YES	-
Nicholson & Tiru (2019)	YES	YES	YES	YES	YES	YES	YES	YES	YES
McCormick et al. (2021)	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: The "-" indicates that the information was not mentioned in the study

Table 3. Presence of tips for a successful program in studies based on Sobeck's (2017) characteristics for students with disabilities

Authors (years)	Obtain student documents	Schedule time for observations	Communicate with paraeducators	Teach through learning centers	Clarify the roles of the paraeducators	Ensure lesson plans are goal-based	Incorporate clear routines	Provide social interaction and physical movement	Collect data
Rafferty (2012)	YES	YES	YES	YES	YES	YES	-	YES	YES
Zvoch & Stevens (2013)	YES	YES	-	YES	-	YES	YES	YES	YES
Pears et al. (2014)	YES	YES	-	-	-	YES	YES	YES	YES
Siddiqui et al. (2014)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Hart et al. (2016)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Zeng et al. (2016)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Christodouolou et al. (2017)	YES	YES	-	YES	-	YES	YES	YES	YES
Zvoch & Robertson (2017)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Beach et al. (2018)	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: The "-" indicates that the information was not mentioned in the study

3.5 *Possibility of identifying tips for a successful program*

All of the studies that we identified in the literature review led us to question whether the advice given by Bell and Carillo (2007) for all summer programs and that given by Sobeck (2017) for programs specifically dedicated to

children with reading and behavioral difficulties had been followed. When reading the different papers, we checked for the presence of information regarding the characteristics of the programs (see Tables 2 and 3). A "-" indicates that we did not find any information in the article indicating whether or not the feature was present. This does not necessarily mean that the program did not implement this feature, but rather that the authors did not mention it. Thus, according to our research, the studies followed most of the recommendations. For example, of the 16 studies, 14 clearly reported an "intentional focus on accelerating learning," especially when the programs were intensive. They all used programs that were developmentally appropriate, with advanced preparation for learning during the summer, involving different stakeholders (researchers, teachers, students, educators, community, etc.). The programs were closely monitored to ensure that they were working, and feedback from the different actors helped identify weaknesses, such as length, boredom, and repetitiveness of tasks. The programs were designed to have an acceptable benefit/cost ratio. Finally, most of the studies specific to children with difficulties followed the advice given by Sobeck (2017). The least frequently listed items were communication and the role of paraeducators. These issues deserve to be further investigated and perhaps improved in future studies.

4. Conclusion

Our systematic review of the literature showed, first, that summer programs are widely conducted, mostly have positive literacy outcomes, and at worst maintain existing knowledge, regardless of children's age or the length of the program. Thus, our article shows that interest in summer programs is still current over the period 2012 to 2021. The results of the studies in our literature review are comparable to those presented in the meta-analyses. More precisely, we can note that 6 of the 16 programs focused on preparing for the next school class, not only in terms of academic aspects but also with regard to social and behavioral questions. A holistic approach to the child seems to be at the heart of the summer programs. The majority of the programs were designed for children from low socioeconomic status families (9) or minorities (2) or for children with reading and/or behavioral difficulties (7) in order to reduce learning inequalities. In addition, parents are becoming increasingly involved (3) and receive more guidance in helping their children learn, without taking over the educational roles of teachers. The studies listed are mostly American studies (14), although we did not restrict our search to this location. This lack of international studies is undoubtedly due to a publication bias rather than a lack of interest in the summer slide in the rest of the world, and maybe due to the fact that we restricted our literature search to studies published in English and employing an experimental group (e.g., Davies et al., 2015 for research in French-Canadian students). As pointed out by Meyer et al. (2017), there has been little research in Europe. Further studies should be conducted into the situation in other countries. This would also help to identify population characteristics that may need to be taken into account in programs. This updated literature review also aims to encourage researchers to conduct more studies on summer programs (and to publish them). We would advise researchers to use the lists of tips from Bell and Carillo (2007), and Sobeck (2017 for populations with difficulties) to conduct their summer program. Furthermore, we encourage authors to give mention these criteria in their publications. Finally, we hope that our systematic narrative review could be completed by a further meta-analysis, for instance, specifically on longitudinal or cross-sectional studies.

Conflicts of interest

There is no conflict of interest.

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