



Henrietta Szold Institute  
The National Institute for Research in the  
Behavioral Sciences

# **EVALUATION OF THE CREATIVE THINKING PROGRAM IN TALMUD TORAH SCHOOLS**

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## **Introduction**

The evaluation study for the Creative Thinking program presented in this report was conducted by the Szold Institute at the request and with the funding of the Bernard van Leer Foundation of the Netherlands.

The objective of this evaluation study was to monitor the program over time and to examine its benefits and effects on the children, teachers and parents. The study's findings will help the Foundation team and the program team determine the program's strong points, as well as areas in which improvement is desirable.

First and foremost, we would like to thank the Ahiya team, especially Mr. Tzali Perlstein and Ms. Tzivvia Greenberg, who have been fully involved all along in our discussions on issues pertaining to the program and research study.

We would also like to thank the Van Leer Foundation (Netherlands) team, especially Ms. Daniella Ben Atar, with whom we enjoyed a very productive ongoing dialogue.

Thank you, too, to the school principals and teachers and the program facilitators and counselors who participated in this study.

We are hopeful that this report will provide information and insights to help the directors and sponsors of the program continue their work in developing programs for early childhood education.

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## **The Creative Thinking Program**

The Creative Thinking (CT) Program exposes preschool and elementary school children to basic scientific concepts and principles (such as, center of gravity, balance, and energy) in a hands-on fashion (by means of constructing a scientific toy), with the aim of developing their thinking skills, curiosity and creativity.

The program was devised by the late Prof. Gideon Carmi of the Hebrew University of Jerusalem and is run by the Karev Educational Program.

Over the school years 2013-2015, the CT Program was operated by Ahiya (the “Learn that you can”<sup>1</sup> project) on an experimental basis in the ultra-Orthodox (*Haredi*) sector, in 25 preschool classes for 3-6 year olds in Holon. Over the school years 2015-2017, it operated in Talmud Torah schools in Bnei Brak and Elad with the participation of 4-6 year olds. The Bernard van Leer Foundation funded the program and its evaluation throughout that period.

The program was designed to impact three target populations: children, educational staff, and parents.

### **Children**

In order to achieve the goals of the CT Program, program facilitators use dynamic methods designed to arouse in the children an interest in ordinary natural phenomena and to develop their ability to think and work creatively. The facilitators visit the school once every two weeks, bringing a new scientific toy with them each time. This toy is used to demonstrate to the children a particular scientific law or principle. Every session begins with a story (about the toy), followed by a discussion with the children. The children then have the opportunity to try out the toy. In addition, the facilitators, together with the children, use simple, easily available materials to create various scientific toys, by means of which the children learn about natural laws such as gravitational force, proportions,

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<sup>1</sup> <http://achiya.org/he/new-building/>

energy, and mass. The project might be, for example, a rattle, which teaches the children about sound waves and resonance, or a car that demonstrates how different types of energy can be utilized. The children generally take the scientific toy home with them, together with an explanatory sheet for their parents and photos of the activities.

### **Educational staff**

The educational staff attends training sessions in which they learn theoretical and practical aspects of scientific concepts and principles, so that they can explore them further between sessions and apply them in the classroom. The program is designed to enable them to convey abstract material to children and expand their repertoire of educational tools.

### **Parents**

At the end of each session, parents receive an explanatory sheet about the scientific principle studied. They also attend creative workshops and activity days, at which they learn about the material studied in the program. Exposing parents to the material and activities is intended to motivate them to explore the program content further with their children in after-school hours.

### **Objectives and evaluation questions**

The Creative Thinking (CT) Program was evaluated using a formative and summative evaluation study. The study's main objectives were to examine the ways in which the program was implemented in practice and to assess to what extent it achieves its goals. The following research questions were derived from these objectives:

1. How is the program implemented and what difficulties and challenges are encountered in operating it?
2. What are the attitudes of the participants (principals, teachers, and parents) toward the program?
3. How do the participants (children, teachers, and parents) view the benefits and effects of the program?

4. Which steps are taken to ensure the sustainability of the program?

## **Method – research population and evaluation tools**

The present evaluation study of the program's implementation during the 2017 school year made use of qualitative evaluation methods<sup>2</sup>. Qualitative data was collected from the two towns in which the program was operating (Bnei Brak and Elad), by means of semi-structured interviews with different people involved in the program and observation of preschool classes.

### **Research population**

The research population consisted of Talmud Torah school principals (four in total – two from Bnei Brak and two from Elad), teachers (eight in total – four from Bnei Brak and four from Elad), the program director, and the program facilitator.

### **Evaluation tools**

#### Interviews with Talmud Torah principals

Semi-structured interviews were conducted with four Talmud Torah school principals, who were questioned about their attitudes toward the program, their degree of involvement in it, and the program's effect on and benefit to the teachers and children.

#### Interviews with teachers

Semi-structured interviews were conducted with eight Talmud Torah teachers, who were questioned about the training sessions, their implementation of program content in the classroom, and on the program's effect on and benefit to themselves and the children.

#### Interview with the program director

A semi-structured interview was conducted with the program director, focusing on how the program operated and was implemented. Special attention was given to difficulties

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<sup>2</sup> The original evaluation plan proposed to administer questionnaires to parents, but this was not possible due to cultural sensitivity.

and challenges, successes and achievements, as well as future plans (for ensuring the sustainability of the program).

#### Interview with the program facilitator

A semi-structured interview was conducted with the program facilitator, who was questioned about the activities in the Talmud Torah schools and how he ran them, how the children benefited, and the difficulties and challenges.

#### Observation in preschools

CT program activities in four Talmud Torah schools (two in Bnei Brak and two in Elad) were observed on two occasions (eight days of observation in all). Observation was conducted according to (quantitative) guidelines, in order to evaluate the characteristics and development of the activity, focusing on the following points: the facilitator's actions, the children's reactions, and the teacher's involvement.

### **Procedure**

Qualitative data was collected from four Talmud Torah schools at two points in time: in March-April 2017, the first set of observations took place and interviews conducted with the teachers and school principals. In May-June 2017, a second set of observations were made and interviews conducted with the facilitator and the program director.

## Findings

In this section, we will describe the research findings, based on the interviews held with different individuals involved in the program (principals, teachers, the program director, and program facilitator) and the observations made in the schools. Findings will be presented according to the following categories:

- a. Implementation of the program in the schools
- b. Attitudes toward the program and satisfaction with how it was implemented (among principals, teachers, and parents)
- c. The achievements and effects of the program (on the children and teachers)
- d. Difficulties and challenges in implementing the program
- e. Needs and suggestions for improvement

### a. **Implementation of the CT Program in Talmud Torah schools**

This year, the CT Program was implemented in eight schools (four in Bnei Brak and four in Elad). It included activities with the children (at school) and training sessions for the teachers, albeit on a smaller scale than last year. This year no activities were held with parents<sup>3</sup>.

**Activities in the schools** – Meetings and activities at schools in Bnei Brak and Elad took place every two weeks for 45 minutes each time and were led by an experienced ultra-Orthodox (Yiddish-speaking) Achiya facilitator. Activities focused on various scientific topics, such as mass and weight, gravity and energy, some of which were studied last year too.

The main characteristics of activities observed at the schools were as follows:

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<sup>3</sup> The school principals opted not to hold activities with parents, due to the sensitivity prevalent in the community and the fear that the program may be harmed and even discontinued.

**Cultural adaptation of program content** – In all eight activities that were observed, the program facilitator spoke in Yiddish, the language commonly spoken at school, and used concepts familiar to this population. He would also connect the content of the activity with the material studied at school (for example, Jewish festivals and the weekly Torah portion), so as to create a link with the world familiar to the child and motivate the teachers to take an active part in the sessions: *“Content was adapted and attempts were made to link the stories with the weekly Torah portion or with a festival...in order to reach the target audience – teachers and children, especially when working with the teachers to get them more involved”* (program director).

**Experiential learning** – In all eight activities observed, the program facilitator conveyed the scientific concept to the children using demonstrations and learning aids, and allowing the children to learn experientially and make a project that involved the scientific principle studied. For example, at one session that dealt with the topic of energy, the facilitator told the story of Moses Montefiore, who was dedicated to improving conditions in Jerusalem and helped build a flour mill to provide the residents with a livelihood. He explained that the mill could be operated in several ways: wind power (demonstrated using mouth movements), weights (demonstrated using metal), and muscle power. Each child then received a stone and some grains of wheat, and the children used the stones to ground the wheat (observed at the school in Elad).

**Development of thinking skills** – In four (out of eight) activities, the discussion between the facilitator and the children involved the development of thinking skills: asking questions, raising hypotheses, and problem solving. For example, in one of the activities observed, a discussion developed between the facilitator and the children about the suffering and crowded conditions that the residents of Jerusalem endured at that time. The children proposed ideas and suggestions to solve the residents’ difficulties, for example, by extending the wall and building outside Jerusalem.

**Teachers’ training** – A limited number of training sessions were held for the Talmud Torah teachers. These training sessions were designed to expose the teachers to theoretical and practical aspects of scientific concepts and principles, so that they could

integrate them into their classwork. Interviews with the eight teachers revealed that only some of them (n=5) attended these sessions.

**b. Attitudes toward the program and satisfaction with how it was implemented**

The various interviews indicated clearly that, similar to last year, feelings toward the program are positive, with a high level of satisfaction with the activities held at the schools and a desire to continue the program.

The interviews with the teachers showed that most of them expressed satisfaction and were happy with the frequency with which activities were held (n=7), the way they were run by the facilitator (n=7), and the age appropriateness of the content (n=5).

The interviews with the principals indicated that they recognize the importance of the program and the benefit that the children gain from it: *“The project is important and the children get a lot out of it – they really enjoy it and it’s a hands-on experience for them”* (Talmud Torah principal from Bnei Brak). One of them even expressed a desire to expand the program to additional classes in his school. However, from the interviews with the teachers and principals, it appears that the involvement of the principals in the program is not very high and consists mainly of occasional updates from the teachers about the activities and their content.

In interviews with the teachers, principals and program facilitator, interviewees were asked about the extent to which parents were involved in the program and parental attitudes toward it. The interviews indicate that parental involvement in the program is limited in scope, one of the reasons being that no activities about the program were held with them (apart from the explanatory sheets they received after each session). Nevertheless, reports did show that some parents react favorably toward the program and are generally happy with it. Some interviewees mentioned that parents take an interest in the activities and in the person who is running them: *“There’s been a change among the parents. There has been interest. It’s not that actual meetings with the parents have taken place...but suddenly they are asking: ‘Who is that guy?’ One father even called me...Maybe parents would like to get to know me and the program and they don’t have an opportunity, because they don’t visit the school”* (program facilitator).

c. **Achievements and effects of the program**

**Children**

The various interviews indicated that the program afforded the children a **glimpse of the field of science and enabled them to experience a variety of enjoyable scientific activities**, an opportunity which they will probably not have in the future: *“The children undoubtedly learn to examine things that they don’t have other opportunities to look at”* (teacher, Elad); *“These five-year olds won’t have another opportunity to see this...even their secular studies do not include science. They learn history, geography, math, Hebrew grammar...but they won’t come across this again. Whatever they gained, they gained, and that’s it”* (project director). The children also **learned new concepts** (mainly scientific) and also **experienced the application of research skills** – asking questions, suggesting hypotheses and problem solving, all of which play a part in **the development of thinking skills**: *“You can see how their thinking changed...compared with the first session this year, we’re in a different place. Their questions are more focused, they think better – when one boy asks a question, another one answers him, and a discussion develops among the children – they assess whether the idea suggested is correct or not”* (program facilitator).

Apart from that, it was clear that the children enjoyed very much the activities and the way they were run, especially the projects they built and took home with them, which added to their sense of **personal efficacy**: *“He [the child] comes out of the Creative Thinking activity with something that he has created and this gives him a sense of fulfillment; he shows everyone that he made it himself, and this gives him a feeling of importance”* (school principal, Elad).

**Teachers**

The interviews showed that the program definitely **enriched the teachers’ knowledge and exposed them to a variety of different teaching strategies**: *“During the lesson, I try to demonstrate to the teachers teaching principles, plans, ...The teacher is usually*

*present at the lesson, so I draw his attention to elements connected with teaching techniques, varying the lesson, and anything else relevant to teaching techniques...* (program facilitator); *“He taught me new strategies...how to explain abstract concepts to children”* (teacher, Elad); *“My own thinking benefited; he gave me ideas on how to encourage the children to think”* (teacher, Bnei Brak).

This exposure has had its impact, and **some of the teachers implement the material in their own classwork**: *“In class, I often bring examples from Rabbi Philip’s classes”* (teacher, Bnei Brak); *“Sometimes I connect what I’m teaching with what he [the facilitator] taught and ask them [the children] ‘Do you remember that we learnt such and such...’ and the children grasp the idea...I include it in lessons about the weekly Torah portion or the stories I tell – that way I give it much more significance”* (teacher, Bnei Brak).

#### **d. Difficulties and challenges in implementing the program**

The interviews with the operators of the program indicate that one of the major challenges they encountered was the **threat of discontinuation of the program** on the part of its opponents in the ultra-Orthodox community (especially in Bnei Brak). For this reason, changes had to be made to the original program. Firstly, the program had to **forego activities with the parents**: *“Someone found a note that a child had dropped in the street, and this appeared in an ultra-Orthodox newspaper, with the accusation that King David was being linked to science activities. Two versions of this appeared in two newspapers, together with the Talmud Torah school logo...Luckily, the principal brushed it off, calling it ridiculous, but, for all that, the parents see it and this puts them under great pressure...The schools where the program operates are very fearful. We’ve had some difficult reactions”* (project manager). In addition, **the number of training sessions for teachers was reduced**: *“This year there were slightly fewer sessions. We sensed that it didn’t sit well with them, something from ‘outside’...They came because their principals told them to, but there was this fear that they are going ‘outside’ to learn something connected with science”* (program director).

Another challenge was to **gain the cooperation of the teachers** during the activities held at the schools: *“Some teachers are present only now and then. Some will do all they can to ensure that I come to their class...and I tell the teachers explicitly that I want them in the class, because the aim is for them to gain something for their work, by way of the insights we gain together...but there are teachers who are less cooperative, and worst of all is lack of interest – an activity is taking place in your class and he [the facilitator] wants to get a message across, and you [the teacher] just seem to ignore the whole thing. It’s as if the children aren’t your students at all”* (program facilitator).

This claim was corroborated by observation performed at the schools: the teacher was present throughout the activity, showed involvement and helped the facilitator when necessary in only four out of the eight sessions observed.

In addition to the challenges described above, interviews revealed **logistical difficulties** regarding the supply of handicraft materials needed for the activities: *“I was told that everything would be ready for me, but the principal doesn’t always arrive with the materials...you have to keep your finger on the pulse”*(program facilitator).

#### **e. Needs and suggestions for improvement**

In the various interviews, a number of suggestions were raised, including: **expanding the program’s target audience** (to additional classes and age groups), **hiring more manpower for the facilitator team, and enhancing the theoretical aspects included in the facilitator’s training**: *“I’d be happy to expand my knowledge about development of thinking skills in its wider sense, theory of thinking development. If the aim is to develop thinking skills, then I should be given more tools to work with”* (program facilitator).

## **Conclusion and discussion of the program's sustainability**

During the five years of research, the CT (Creative Thinking) Program was examined with the focus on four central aspects: how the program was operated and implemented (in preschools and Talmud Torah schools), attitudes toward it (among the educational staff and parents), its benefits and effects (on the educational staff, children and parents), and the program's sustainability.

This section will discuss the main topics suggested by the findings (collected throughout the years of the study), so that those involved in operating and funding the program can better capture the program's strong points, as well as areas in which improvement is desirable. Recommendations and suggestions for future work will also be provided.

Between the 2013 and 2017 school years, the CT Program was implemented in the ultra-Orthodox sector, initially on an experimental basis in preschools (in Holon) and later as a program held at Talmud Torah schools (in Bnei Brak and Elad). The program was designed to impact three circles: children, educational staff, and parents. For children, it consisted of activities held once every week or two at preschools and schools; for the educational staff, training sessions for teachers (about four sessions a year); and for parents, workshops for parents and children and activity days in the community. Findings show that during the years the program was implemented in preschools in Holon, it ran according to the original plan. However, when the program was implemented at schools in Elad and Bnei Brak, the operators had to alter the original plan and reduce the scope of activity, because of opposition in the ultra-Orthodox community. Consequently, even though the children's activities at school remained unchanged, fewer training sessions for teachers were held (this year) and no activities were held with the parents. These changes have implications for the implementation, expansion and possible sustainability of the program, as will be discussed below.

The Creative Thinking Program developed and took shape as it was being implemented, and it benefited its participants in various ways, but also presented its operators with challenges that affected the character and implementation of the program.

The findings indicate that the program gave the **children** a glimpse of the world of science, taught them new concepts, and gave them an opportunity to try out research skills (such as, asking questions, suggesting hypotheses and problem solving) that advance the development of thinking skills. In addition, the program also (indirectly) increased the children's sense of personal efficacy, through the projects they made and took home. With regard to the **teachers**, findings show that they acquired new knowledge and were exposed to a variety of different teaching strategies, which some of them even adopted for use in class. With regard to the **parents**, it was found that in the first few years of the program in preschools in Holon, when parent-child workshops were held, parents benefited from new ideas for recreational activities with their children, which some of them actually utilized. During workshops that were held last year in Bnei Brak and Elad for mothers and children who did not participate in the program, it was clear that the mothers gained knowledge and new concepts, as well as ideas for recreational activities. Furthermore, these workshops also influenced the immediate surroundings i.e. the other family members, who were involved and benefited from the activities. It is interesting to note that mothers attended the sessions with several children, or came with a different child each time. At home, too, the children shared their experiences and activities with the rest of the family.

The study also revealed a high level of satisfaction with the program and the workshops and a wish on the part of teachers, principals and parents to continue with both the program and the workshops. In addition, mothers who do not participate in the program (in Elad) expressed their desire to expand the program to the Talmud Torah where their children study.

However, as described above, the program operators faced **two major challenges**. The first was the implementation of the program in an ultra-Orthodox population and the threat of the program's discontinuation, on the part of opponents from this community. To meet this challenge, the program operators took preliminary steps, which included preparatory meetings with community leaders, school supervisors and principals to win them over and gain their cooperation. They also made cultural adaptations to the program, in order to make it more accessible to the target population. These adaptations included recruiting and training facilitators from the ultra-Orthodox community, cultural

adaptation of the educational content, and creating interfaces between the program content and other content studied in preschools and Talmud Torah schools.

The second challenge facing the program's operators concerns the degree to which it was actually adopted inside and outside of the school setting (preschools and schools). The findings show that one of the major difficulties facing the program facilitators was lack of cooperation and a low level of involvement on the part of a good number of teachers (at preschools and schools), during both school activities and training sessions. This was reflected in poor attendance at the sessions, occasional expressions of lack of interest in the activities, and a hesitancy to assist the facilitator when help was needed. In this context, it is worth noting the very limited involvement of the principals in the program, which may have influenced the teachers' degree of commitment. It was also found that only some of the teachers reported having applied the principles that they learned on the program in class, or having an intention to do so in the future. Some preschool teachers claimed that the training they received was inadequate to prepare them to apply independently the principles they had learned. In view of these findings, the question of how to implement the program and ensure its sustainability becomes a key question, since considerable work was invested in designing and operating the program, and it is important that it also inform teachers in their day-to-day work with other children in the future.

The question of how to implement and expand the program is also relevant vis-à-vis the parents, who are considered to play a significant role in generating change in the children (the assumption being that a change in parental behavior leads to a desirable change in their children). However, as noted above, in the more recent years of the program (in the Talmud Torah schools), the operators had to forego workshops and other activities with parents, whose involvement in the program was therefore much lower. Furthermore, in preschools that did hold activities with parents, findings showed that these were insufficient, and the teachers expressed a need to strengthen the parents' involvement in the program.

These findings suggest several conclusions and suggestions (some of which appeared in previous reports) regarding aspects that are helpful or may be helpful in implementing the program.

- a. One basic condition of the highest importance is allocation of time for training and mentoring the teachers. In this regard, we must note that the **principal of the school** plays an important role in the process of implementing the program. His belief in the importance of the program and determination to allocate the time needed to put the program's principles into practice, combined with an unequivocal message to the teachers that the program is important, are all elements that can drive the optimal implementation of the program.
- b. Training should furnish the teachers with **ideas for activities related to the program content, so that they will be able to try them out themselves and even develop** a pool of ideas and activities to be used in class.
- c. **Peer instruction** is extremely important, and a mechanism must be developed to allow teachers to share their experiences and activity ideas that they themselves developed.
- d. **Teachers should be provided with ongoing professional mentoring and support** that should, among other things, address needs and difficulties that may arise when teaching the content of the program and preparing lesson plans.
- e. Another important aspect is **flexibility and the need to adapt the program's implementation** to the characteristics of the school and the different grades. It is important to convey to the teachers the feeling that it is perfectly legitimate for them to freely and flexibly select content from the program that is suitable for their class. Allowing and even encouraging flexibility and adaptation of the material to the teacher's personal style and the needs of the class engenders a sensitive, relevant and appropriate implementation of the program that meets real classroom needs.
- f. Considerable efforts should be made to **strengthen the connection between the school and the home** regarding the topics explored in the program. Different systems should be considered to involve the parents actively via their children, for example, by means of

worksheets that are sent home or encouraging children to record their experiences in a special notebook. At the same time, efforts should also be made to raise parental awareness of the importance of the program and reinforce their sense of competence, by means of clear professional instructions, individual and/or group guidance, providing ideas for joint activities, etc.

**In conclusion,** it appears that the Creative Thinking Program provided participants with a unique experience, in terms of both knowledge and teaching and learning techniques. However, as the present study indicates, when implementing programs such as these, there are a number of different issues which require careful consideration. These include the need to enlist the support of the principal for the program and provide teacher training and ongoing professional support. Flexibility is also necessary and the way in which the program is implemented should be adapted to the school and its classes, so as to optimally ‘fit’ the target population and also ensure the program’s sustainability.