Executive Summary - The Creative Thinking program Evaluation

Background

The Creative Thinking program was developed by Prof. Gideon Carmi (of the Hebrew University) and is run by the Karev Program for Educational Involvement. The program aims to expose children (in and before elementary school) to basic scientific concepts and principles (e.g., center of gravity, equilibrium, energy, etc.) in an experiential manner while constructing a scientific toy and to develop their cognitive abilities, curiosity and creativity. For three years, the program[1] has been run in a number of ultra-Orthodox pre-schools[2] for children ages 3-6 in the city of Holon by Achiya: Learn that you can[3] and funded by the Van Leer Foundation of Holland.

Goals of the Evaluation

The evaluation of the Creative Thinking program is a formative and summative evaluation that aims to accompany the program throughout the years of its operation and to evaluate its effects and contributions for children[4], teachers and parents. Based on the goals of the evaluation, research questions were formulated with a focus on four main areas: **Implementation of the program** (the activities in the pre-schools, the training of the teachers and the activities that the children do together with their parents), **Attitudes toward the program** (among the teachers and parents), **Effects and contributions of the program** (for the children, teachers and parents) and the **Sustainability of the program** (its current and future implementation by the teachers).

Method

This research evaluation involved the collection of quantitative and qualitative data through semi-structured interviews with individuals in different roles (manager of the program, leader of the teacher-training sessions, trainers, supervisor of the pre-schools, teachers), classroom observations and observations of teacher-training sessions, and also questionnaires completed by teachers and parents.

[1] The original program was adapted for the ultra-Orthodox sector and developed through the Science Toy program by Ms. Osnat Berger.
[2] In its first year, the program was implemented in 15 pre-schools. In the second and third years, the program was implemented in 25 pre-schools.
[3] http://achiya.org/
[4] The effects of the program on the children were not examined directly. We relied on reports from their teachers and parents.

Main Findings

Implementation of the program

Activities in the pre-schools: These activities were conducted once a week throughout the year (as opposed to once every two weeks in previous years) and were geared toward the experiential acquisition of different scientific concepts and principles (symmetry, energy, center of gravity, etc.). The majority of the activities were appropriate for the age of the children involved and included elements of the development of scientific thinking. During some of the activities, connections were drawn between the activity at hand and other content being taught in the pre-school.

Teacher training: Supplemental teacher training focused on related topics was provided parallel to the activities in the classroom. Teacher-training sessions addressed theoretical and applied aspects of the topics being taught and provided teachers with the opportunity to present activities that had been run in the classroom following content taught in the training sessions.

Participation of parents in the program: The parents first learned of the program through the teacher (64%) or through the child in the program (42%). The majority of parents (85%) participated in an informational meeting regarding the program. Throughout the year, a large proportion of the parents received oral reports (65%) or written reports (40%) regarding activities in the pre-school (within the framework of the program).

Difficulties and challenges faced in the operation of the program: The main difficulties faced were related to the additional complexity associated with the increased frequency of program activities in the pre-school (for example, logistical difficulties in supplying sufficient materials for the science toys for each child) and to a lack of cooperation among some of the teachers within the framework of the classroom activities and within the framework of the teacher-training activities.

Suggestions for the improvement of the program: The findings suggest that the parents' involvement in the program should be increased in different ways (for example, holding an informational meeting for parents at the start of the program, providing written reports regarding program activities conducted in the pre-school on a regular basis, etc.). This evaluation also noted a need to increase the involvement and commitment of the teachers with regard to the program, including how they can run these types of activities themselves.

Attitudes toward the program

Teachers' attitudes toward the program

- All of the teachers believed in the program and most of them saw the program as having an important place in the pre-school (96% *highly* or *very highly*). Most of the teachers also

felt that the program was important for the children's continued educational success (83% *highly* or *very highly*).

- The levels of satisfaction with the program, in general, and with the classroom activities, in particular, were high. (All of the teachers reported high or very high levels of satisfaction.) The teachers were particularly satisfied with how the science trainer related to the children and with the guidance she provided in the classroom, the range of content and how the children enjoyed the experience. However, a smaller proportion of the teachers (77%) were highly or very highly satisfied with the teacher training.

Parents' attitudes toward the program

- Almost all of the parents (95%) thought that it was important or very important that the pre-school continue to use the program content. Ninety percent of them viewed the program as important for their children's continued educational success.
- The levels of satisfaction with the program, in general, and with the activities they participated in together with their children, in particular, were high. (Ninety-seven percent reported a high or very high level of general satisfaction and more than 95% reported similar levels of satisfaction with the activities they carried out together with their children.)

Contributions and Effects of the Program

For the children: The greatest benefit of the program for the children was their enjoyment as they worked with science concepts (all of the teachers and 72% of the parents rated this aspect as *high or very high*). Similarly, the teachers noted that the program encouraged scientific thinking among the children and that the children acquired an understanding of scientific concepts through the program. In contrast, the program had more limited influence in the areas of "solving problems in different ways" and "asking questions" (61% of the teachers rated the influence on problem-solving as *high or very high* and 69% of the teachers rated the influence of the program on the asking of questions as *high or very high*).

For the teachers: The program provided the teachers with new knowledge and increased their confidence regarding teaching science for young children.

For the parents: The program provided the parents with ideas for activities to do with their children during their free time and some of the parents did indeed do these activities with their children (63%).

Sustainability of the Program

Involvement of the teachers in the activities carried out in the classroom: All of the teachers reported that they were present during the activities implemented in the classroom. However, small percentages of the teachers were involved (*highly* or *very highly*) in the actual implementation of activities and the planning of the activities (27% and 36%, respectively).

Application in the classroom: All of the teachers except for one reported using ideas for activities that they got from the training sessions in their classrooms.

Plans for the future: The teachers would like to continue to use concepts from the program after the end of the program. Efforts have been made by the people responsible for the program to continue the program after the support provided by the Van Leer Foundation has ended. Efforts have been made to locate a source of financial support for the continued operation of the program. Another important issue is the need to find a way to continue the teacher-training portion of the program, to provide continued support and professional guidance for its implementation.

Main Recommendations

- The commitment of the teachers with regard to the implementation of the Creative Thinking program, during the program and after it has ended, should be increased. At the start of the program, teachers should be informed of what is expected from them, in order to secure their full participation.
- Efforts to strengthen the relationship between the parents and the program in different ways should be continued, for example, sending worksheets home and providing suggestions for follow-up activities regarding a certain topic, with clear instructions for work that is to be done at home.
- Efforts should be made to find an organization to take responsibility for the continued operation of the program, including providing support and professional guidance for teachers as they continue to use the program after it is no longer supported by the Van Leer Foundation.
- Consideration should be given to the preparation of a teacher handbook that would include ideas for classroom activities and clear instructions as to how to carry out those activities.