For voluntary support to the future We meet in Y.O.D.A.!



The Educational Volunteers Foundation of Turkey (TEGV)

Measurement and Evaluation Report 2022 Reporter: Prof. Serkan Özel





TÜRKİYE EĞİTİM GÖNÜLLÜLERİ VAKFI

"In the quiet hours when we are alone, and there is nobody to tell us what fine fellows we are, we sometimes come upon a moment in which we wonder, not how much money we are earning, nor how famous we have become, but what good we are doing."

A. Milne



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Executive Summary

The vision of the Turkey Educational Volunteer Foundation (TEGV) is to be an NGO accessible to every child in our country with its effective and distinctive educational programs and sustainable structure. Volunteers are necessary and extremely helpful for this vision. The current project, run by TEGV in partnership with Bank of America (BofA), aims to train young people between 18-25 at Y.O.D.A (Youth Online Design Academy) program. Volunteers were administered a full-day "Problem-Oriented Thinking and Project Cycle" training. Webinars on sustainable development were delivered. After the training and webinars, the volunteers developed projects on real-life problems they chose. In the next phase, our volunteers became children's mentors to help them detect real-life issues, find solutions, and produce projects. Volunteering has several benefits. Connecting volunteers to each other, being good for volunteers' mind and body, advancing own career, and fun and fulfilment of one's life are the four categories could be counted as benefits of volunteering. Among the participants of the Y.O.D.A. program, 40% of them have been participating TEGV programs as volunteers even before the Y.O.D.A program, another 40% who had experience from other NGOs. But most importantly, this program brought over 550 new young people on the board. In other words, this was the first experience of 30% of the participants in volunteer programs.

Because the program has two overall goals, we have two different sets of participants to evaluate the impact of the program: (1) young adults' age between 18-25 and (2) children's age between 9 to 14. 1656 young people participated in the webinars. 447 of them were selected for training. Average age of the 447 participants was 22.5 years. 70 volunteers met 690 students in 12 cities.

A phenomenological inquiry method that searched for the essence of the interviewee's lived experiences was used to enrich the data about the impact of training and webinars on volunteers. Even though not all the participants could not finish the program for various reasons, TEGV, in partnership with BofA, reached 1656 young people. COVID-19 pandemic and all difficulties brought some new perspectives to our lives. The extensive use of online programs is one of the many new perspectives. With online programs, it is easier to reach more diverse groups. However, keeping them engaged on an online platform might be more complex than face-to-face programs. During the interviews, Y.O.D.A. program's online feature became both advantageous and disadvantage. Volunteers, especially those who work, used online meetings and virtual workplaces for their occupations missed some webinars because it was burden for them. On the other hand, the venue-independent online program was also an incentive for the ones who have busy schedule.

To some extent, volunteers' personal and occupational lives might explain dropouts. During the program, various topics were offered as webinars, and participants met with experts from different fields. Diversity in webinars was shown as a strong advantage of Y.O.D.A. However, variety in topics were considered by some participants as losing focus, ending with dropouts according to survey results. Considering 447 participants who finished their trainings and webinars and produced 206 individual and 98 team projects, Y.O.D.A. is successful disseminating problem-oriented thinking and project cycle perspectives to young adults.

The second level achievement was evaluated based on the progress in children's problem-solving skills and creativity. Children who attended program statistically significantly improved their problem-solving skills and creativity. Children's problem-solving skills and creativity levels were also improved for both gender groups. Even though the increase in males' problem-solving skills was not statistically significant, the increase was practically significant (Cohen's d = 0.38). The effect of the 6-week program on children's creativity was dramatic, especially for females. Statistical findings were supported by interview results too. Overall analysis also showed statistically and practically significant impact of the program on students' problem-solving skills and creativity. To sum up, we have sufficient evidence that shows the impact of the program on young adults and students.

Teaching Problem-Oriented Thinking and Project Cycle to Children from Disadvantages Neighborhood through Voluntary Young Adults

The vision of TEGV is to be an NGO accessible to every child in Turkey with its effective and distinctive educational programs and sustainable structure. There are various ways of achieving this vision. However, the main question is who this mission's driving force would be. The answer is easy: volunteers. Volunteers are necessary and extremely helpful for this vision.

Impact of Voluntarism

According to the Corporation for National and Community Service, volunteers are more likely to be engaged in their communities and are happier and healthier as a result (Borgonovi, 2008). The study also found that volunteers were more likely to vote, be active in politics, and participate in other forms of civic engagement. In addition, volunteers were more likely to have stronger relationships with their families and friends. Volunteering is a great way to give back to your community and positively impact the world.

Volunteering provides many benefits to both the individual and the community. Connecting volunteers to each other, being suitable for volunteers' minds and bodies, advancing own career, and having fun and fulfillment of one's life are the four categories that could be counted as benefits of volunteering (Western Connecticut State University, 2018). For underrepresented and disadvantaged groups, it can be vital, as it can help to improve their quality of life and give them access to opportunities they might not otherwise have (Carter & Welner, 2013). There are many ways to volunteer, and no one is too busy or inexperienced to make a difference. For the volunteer, volunteering provides an opportunity to give back to the community, learn new skills, and build confidence. It also provides a way to reduce stress, and anxiety, and improve social skills.

For the community, volunteering provides much-needed help with projects that would otherwise go undone. It also allows people to learn about new cultures and meet new people. In our case, volunteering with a non-profit organization, TEGV, can profoundly impact the creativity and problem-solving skills of underrepresented and disadvantaged groups (McGann et al., 2019). TEGV's partnership with Bank of America enables volunteers to teach in-demand subjects like problem-oriented thinking and project cycle to students who might not have access to quality education otherwise.

The Importance of Creativity and Problem-Solving Skills

Creativity and problem-solving skills are essential for children to succeed in life. These skills allow children to come up with new ideas and solutions and to think outside the box (Kivunja, 2014; Noel & Liub, 2017; Rahman, 2019). They are essential for students, who must think critically to compete in the global economy. Creativity and problem-solving skills are also crucial for employees, who will need to come up with new ideas and solutions to stay competitive (Carnevale & Smith, 2013). Children from disadvantaged neighborhoods often have difficulty developing their creative and problem-solving skills. This is due, in part, to the lack of opportunities and resources available to them. Fortunately, these skills can be nurtured and fostered with the right support and encouragement. One way is to provide them with educational programs and activities encouraging creativity and problem-solving. This can be done through volunteer organizations or non-governmental organizations (NGOs).

Problem-Oriented Thinking and Project Cycle

Problem-oriented thinking has been shown to be an effective problem-solving approach for both children and adults. It involves breaking down a problem into smaller parts, and then tackling each one systematically. This approach can be used in various settings, from the classroom to the workplace. The project cycle is another problem-solving approach that can be used with children. It involves planning, executing, and monitoring a project from start to finish. This approach helps children learn how to set goals, work towards them, and assess their progress along the way. Both approaches can be taught through volunteer work by young adults. The Turkey Educational Volunteer Foundation (TEGV) is a nonprofit organization that helps disadvantaged children in Turkey learn problem-solving skills through voluntary work. TEGV provides training and support to young adults who want to teach these approaches to children in need.

What Is Problem-Oriented Thinking?

Problem-oriented thinking is a way of looking at the world that encourages people to see problems as opportunities for growth. It involves identifying a problem, analyzing it, and coming up with a solution. Problem-oriented thinking helps people think critically and come up with innovative solutions to problems. Problem-oriented thinking is often used in business and engineering, but it can be applied to any area of life.

It can be used to solve problems in relationships, school, and workplace. Teaching problem-oriented thinking to children from disadvantaged backgrounds can help them overcome the obstacles they face.

Problem-oriented thinking is a problem-solving technique used to tackle complex problems. It involves breaking down a problem into smaller parts and then working on each piece until the problem is solved. This technique can be used to help children from disadvantaged backgrounds, who often face challenges that are beyond their understanding. It can help them see the world more analytically, and break down problems into smaller, more manageable parts. Teaching problem-oriented thinking can help children from disadvantaged backgrounds to develop critical thinking skills and to become more proactive in solving their problems.

What Is the Project Cycle?

The project cycle is a five-step process that helps project managers successfully complete projects. The cycle involves planning, organizing, staffing, directing, and controlling. Each step is essential to the success of a project and must be carried out in order. Planning is the first step and is critical for ensuring that all stakeholders are on the same page. Organizing ensures that the resources are in place to carry out the project. Staffing involves assembling a team of experts who will carry out the project. Directing sets clear goals for the team and provides them with the guidance they need to succeed. Controlling monitors the team's progress and makes necessary course corrections to ensure that the project remains on track.

The project cycle can help children from disadvantaged backgrounds in several ways. First, it allows them to learn how to solve problems. Second, it teaches them how to work collaboratively. Third, it helps them to develop a sense of responsibility. And fourth, it teaches them how to think critically. The project cycle is an essential tool for helping children from disadvantaged backgrounds to succeed in life. It provides them with the skills and knowledge they need to overcome obstacles and achieve their goals.

How Effective Is Teaching Problem-Oriented Thinking and the Project Cycle to Children from Disadvantaged Backgrounds?

There is no easy answer when it comes to assessing the effectiveness of teaching problem-oriented thinking and the project cycle to children from disadvantaged backgrounds. However, there are several factors that can be looked at to get a better understanding of the situation. For one, it is important to consider how well the children are able to understand and apply the concepts they are learning. In addition, it is also important to look at whether the children feel motivated to learn and participate in the program. Finally, it is necessary to examine whether the program is actually helping the children to improve their problem-solving skills and creativity. Several challenges are associated with teaching problem-oriented thinking and the project cycle to children from disadvantaged backgrounds. First, these children may not have the same level of education or access to resources as children from more privileged backgrounds. Second, they may be living in difficult circumstances that make it difficult for them to focus on schoolwork or extracurricular activities. Finally, they may not have positive role models or mentors who can help them learn and grow. Problem-oriented thinking and the project cycle can be taught through voluntary young adults working in disadvantaged neighborhoods.

These volunteers are in a unique position to not only teach these skills, but also model them for the children they work with. Teaching problem-oriented thinking and the project cycle can help children from disadvantaged backgrounds learn how to solve problems and complete projects more effectively. By using volunteers to teach these skills, we can help even more children achieve success in their lives.

Our Strategy

Volunteers implement the specific educational programs created by TEGV at Educational Parks, Learning Units, and Mobile Firefly Learning Units established all around the country, and via the "Support Protocol for Social Activities." Among many programs designed and run by TEGV, in partnership with Bank of America (BofA), the current project aims explicitly to train young people between the ages of 18-25 at Y.O.D.A (Youth Online Design Academy) program through training, webinars, and projects. Our volunteers were administered a full-day "Problem-Oriented Thinking and Project Cycle" training. The aim of the training to help volunteers develop their problem-based learning and design-oriented thinking skills. Webinars on various topics on sustainable development were delivered. After the trainings and webinars, the volunteers developed projects on real-life problems they chose. In the next phase, our volunteers became children's mentors to help them detect real-life issues, find solutions, and produce projects.

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Mission and Vision



MISSION

To support the basic education provided by the state, in order to ensure that children of primary school age are raised as equipped and qualified individuals, embracing modern and universal values, as well as the fundamental principles of the republic.

VISION

To become a Non-Governmental Organization accessible to every child living in Turkey, with its effective and distinctive education programs and sustainable structure.

General Overview of The Project

TEGV, in partnership with BofA, had two level purposes with Y.O.D.A. program. Donating young people at ages of 18-25 with problem-oriented thinking and project cycle experience was a significant level of achievement. As the second level of achievement, skills obtained should have been practiced in a real-life setting. 1656 young people aged between 18-25 participated in the webinars. Among 1656 participants, some were selected for the training, and 447 TEGV volunteers in 44 cities completed the training by producing 206 individual and 98 team projects. Among 447 participants who completed their training, 70 volunteers met 690 students ages 9 through 14 in a 6-week education program in 7 Education Parks and 9 Learning Units in 12 different cities.

Methods

With the mixed-method quasi-experimental design, we aimed to evaluate the effectiveness of training and webinars that young adults participated in and investigate the program's effect on children, who are the ultimate beneficiaries of the current project.

Settings

TEGV, in partnership with BofA, had two level purposes with Y.O.D.A. program. Donating young people aged 18-25 with problem-oriented thinking and project cycle experience was a significant level of achievement. As the second level of achievement, skills obtained should have been practiced in a real-life setting. To accomplish the first goal, donating young adults with problem-oriented thinking skills and project cycle experience, webinars were organized by experts from the United Nations on global goals for sustainable development: (1) Qualified Education, (2) Sustainable Cities, (3) Responsible Consumption, (4) Clean energy, (5) Industry and Infrastructure, (6) Healthy and Quality Life, and (7) Clean Water. Each webinar lasted an hour and was free to access for young adults. Attendees were provided an opportunity to present their questions before and during the webinars. After webinars, a full-day "Problem-Oriented Thinking and Project Cycle" training was provided to young adults selected from webinar attendees. The training aimed to develop young adults' problem-based learning and design-oriented thinking skills. Participants who completed trainings were then asked to create projects on real-life problems of their choice. They were free to create their projects individually or as p team. After completion of project developments, selected volunteers became mentors for children to help them to detect real-life problems, find solutions, and produce projects. They implemented a 6-week education program in various cities in Turkey.

Participants

Because the program has two overall goals, we have two different sets of participants to evaluate the program's impact: (1) young adults between 18-25 and (2) children age between 9 to 14.

Young Adults. 1656 young people aged 18-25 participated the webinars. Among 1656 participants, some were selected for the trainingtraining7 volunteers completed the trainings. The average age of the 447 participants was 22.5 years, and their age distribution is presented in Figure 1.



Frequency-Age

Figure 1. Distribution of participants who attended training by their ages.

447 participants were from various cities in Turkey. Figure 2 represents the location of volunteers as well as the number of volunteers in each city. The majority of the participants were on the west and south coastline. Among 447 participants who completed their training, 70 volunteers met 690 students in 7 Education Parks and 9 Learning Units in 12 different cities.



Figure 2. Participants' geographic distribution. Note. The map is created with mapchart.net. **Children.** In 7 Education Parks and 9 Learning Units, 690 children (Nboys = 332, Ngirls = 358) participated the program. The distribution of children based on education parks and learning units they attended is presented in Table 1. We selected 60 children to implement both creativity and problem-solving skills measures. Six students were absent for either post-test on the problem-solving measure, and seven students missed either pre- or post-test on creativity measure. Because four students both missed a test on creativity and problem-solving, their data was removed from the analysis. For the remaining three students, multiple imputations used for their missing data not to lose any more data. In the end, 56 students' data were used for the analysis.

Table 1

Distribution of Children Based on Education Parks and Learning Units They Attended

Туре	City	NGirls	N _{Boys}	Nvolunteers
	Ankara	28	29	8
	Antalya	24	24	5
	Eskişehir	8	10	2
	Gaziantep	39	34	12
Education Parks	İstanbul	14	13	2
	İzmir	28	26	6
	Van	13	28	6
	Total	154	164	41

	Bursa	1	8	3
	Diyarbakir	4	4	1
	İstanbul 1	12	9	2
	İstanbul 2	2	10	1
Learning Units	Kocaeli	117	125	17
	Mardin	8	4	1
	Sakarya	19	22	2
	Van 1	8	2	1
	Van 2	7	10	2
	Total	178	194	30
Grand Total		332	358	70

Instruments

Effectiveness of the Program: Young Adults. Because the program has two overall goals, we have two different sets of participants to evaluate the program's impact: (1) young adults 18-25 and (2) children between 9 to 14. Thus, the measurement and evaluation (M&E) has two levels: young adults and children. In the first level, we evaluated the effectiveness of trainings and webinars through online surveys after each task, project assessment rubric, and semi-structured interviews at the end of the trainings and webinars. In the second level, we investigated the effect of the program on children, who are the ultimate beneficiaries of the current project. We measured children's problem-solving skills and creativity before and after the implementation. We choose after-task online surveys to evaluate webinars and trainings because surveys make easy to access large groups of participants. Each survey was seeking the participants' perceptions of the trainings and webinars and the presenter. Open-ended questions were added for richer responses. For webinars, participants questions and comments were collected before to evaluate the effect of program on them by comparing with their in-webinar comments and questions. Another data was project proposals by participants who completed trainings. Project proposals were evaluated by trainers with a project-cycle rubric. To enrich the data about the impact of trainings and webinars on volunteers, a phenomenological inquiry method that searched for the essence of the interviewee's lived experiences was used. An open-ended questionnaire was prepared to record the volunteers' true stories. One of the ways of knowing is listening to life stories. The gesture, mimic, tone, and color of the voice of the speaker gives hidden messages about what the person felt during the incident.

The interview method in this sense gives various clues on such situations. Open-ended, semi structured, friendly conversations gave freedom to the respondents in showing their feelings frankly. Thus, we included in-depth, semi-structured interviews that are formed by using hierarchical focusing method. We interviewed four volunteers (two females) to provide depth to data. Three of the interviewees participated in volunteering before whereas it was the first volunteering for the fourth interviewee. One of the volunteers attended TEGV as a participant when he was a child.

Online Evaluation Surveys for Webinars and Training: Young Adults. To evaluate the training and webinars, online surveys were sent to attendees after completing each training and webinar. Both surveys included a six 5-point rating scale to evaluate (a) novelness of the content, (b) sufficiency of content, (c) time efficiency, (d) presentation of new content, (e) compatibility of the content with its call for participation, and (f) overall success of the training/webinar. We also asked participants whether they would suggest the program to their friends or colleagues. In training sessions, we also asked when they would use the content in their lives. Further, the survey included the evaluation of the trainer with a five 5-point rating scale in terms of (a) knowledge, (b) efficient use of time, (c) engagement of participation, (d) fluency and clarity, and (e) overall training. The last question for the online survey was common for both training and webinars: What is the most important information you learned today?

Interview with Young Adults. To enrich the data about the impact of trainings and webinars on volunteers, a phenomenological inquiry method that searched for the essence of the interviewee's lived experiences (van Manen, 1990) was used. An open-ended questionnaire was prepared to record the volunteers' true stories. One of the ways of knowing is listening to life stories. The gesture, mimic, tone, and color of the voice of the speaker gives hidden messages about what the person felt during the incident (Seidman, 2013). The interview method in this sense gives various clues on such situations. Seidman (2013) defined telling stories as "a meaning-making process" (p. 7). "Every word people use in telling their stories is a microcosm of their consciousness" (Vygotsky, 1987, pp. 236-237). Interviews are the transformation of experiences into words. The quality of the words selected during the interviews in explaining what has been experienced will reflect that person's emotions and preferences. These were considered as the important issues of the study by the researcher. Open-ended, semi structured, friendly conversations gave freedom to the respondents in showing their feelings frankly.

Thus, we included in-depth, semi structured interviews that are formed by using Hierarchical Focusing Method (Tomlinson, 1989) that has five stages.

- Domain of items that involves the content analysis established by deep literature review was determined.
- (ii) Research focus, the interviewer wished to gather information about a set of competencies was selected from a wide list of related items.
- Questions were written in a hierarchical form. Open to closed ended questions were established as the main frame of the research (see Appendix A for interview questions).
- (iv) Interviews were carried out as open-endedly as possible without interrupting or influencing. The interviews were recorded (Tomlinson, 1989).
- (v) The video-recordings were analyzed by RITA (Rapid Identification of Themes from Audio Recordings) method (Neal, Neal, VanDyke, & Kornbluh, 2015).

Impact Evaluation: Children. The last part of the impact evaluation is to investigate the effect of the program on children, who are the ultimate beneficiaries of the current project. After their trainings, volunteers met with children in 12 cities online to work on projects. To see the impact of the project, we measured children's creativity and problem-solving skills before and after the 6-week program.

Problem solving is decision making where there is complexity and uncertainty that rules out obvious answers, and where there are consequences that make the work to get good answers worth it. The World Economic Forum in its Future of Jobs Report placed complex problem solving at #1 in its top 10 skills for jobs in 2020. Critical thinking and creativity come next in the list. Andreas Schleicher, Director of Education and Skills and Special Advisor to the Secretary General of the OECD, explains the need for developing problem solving skills in students this way: "Put simply, the world no longer rewards people just for what they know—Google knows everything—but for what they can do with what they know. Problem solving is at the heart of this, the capacity of an individual to engage in cognitive processing to understand and resolve problem situations where a method of solution is not immediately obvious." Thus, to evaluate the effectiveness of the program on ultimate beneficiaries, i.e., students, we measured two constructs: problems-solving skills and creativity. **Test of Problem Solving – Elementary.** Test of Problem Solving – Elementary (TOPS-3E: NU) is used to assess children's "ability to integrate semantic and linguistic knowledge with reasoning ability by way of picture stimuli and verbal responses" (Bowers, Huisingh, & LoGiudice, 2018). The problem-solving skills we measured are making inferences, sequencing, negative questions, problem solving, predicting, and determining causes. This measure is designed to be individually administered for students 6 years 0 months old through 12 years 11 months.

The Test for Creative Thinking - Drawing Production. Students were also given The Test for Creative Thinking - Drawing Production (TCT-DP) (Urban & Jellen, 1985; Jellen & Urban 1986) as a pre-test and post-test to measure the change in students' creativity. In this report, the creativity is defined by the components model of creativity, which is designed by Urban (2010). In this model, there are six components (see Table 2). Three of the components represents cognitive components while the last three represents personality components.

Table 2

Cognitive and Personality Components of Creativity Model

Cognitive Components	Personality Components
1. Divergent thinking and acting	4. Focusing and task commitment
2. General knowledge and thinking base	5. Motivation and motives
 Specific knowledge base and area specific skills 	6. Openness and tolerance of ambiguity

These cognitive and personality components have subcomponents presented in Figure 6. The creative processes are formed by a functional system of components working together.



Figure 6. Components model of creativity by Urban (2010).

In TCT-DP, participants are given an A4 size testing sheet with instructions on top (see Appendix B) with an incomplete drawing (see Figure 7). On the testing sheet, six figural fragments are given: (1) a semi-circle, (2) a point, (3) a large right angle, (4) a curved line, (5) a broken line, and (6) a small open square outside the large square frame. Even though the large square frame is not a fragment, it has a special function. Each drawing is evaluated by the following set of 11 key criteria that constitute the TCT-DP construct as a whole (Urban & Jellen, 1985):

- 1. Continuations (0-6 points)
- 2. Completion (0-6 points)
- 3. New Elements (0-6 points)
- 4. Connection made with a line (0-6 points)
- 5. Connections made to produce a theme (0-6 points)
- 6. Boundary breaking that is fragment dependent (0, 3, or 6 points)
- 7. Boundary breaking that is fragment independent (0, 3, or 6 points)
- 8. Perspective (0-6 points)
- 9. Humor and affectivity (0-6 points)

10. Unconventionality

- a. Unconventional manipulation (0 or 3 points)
- b. Symbolic, abstract, fictional (0 or 3 points)
- c. Symbol-figure-combinations (0 or 3 points)
- d. Non-stereotypical utilization of given fragments/figures (0-3 points)
- 11. Speed (0-6 points)



Figure 7. Drawing area of TCT-DP
Yontar-Togrol (1999) adapted TCT-DP
in Turkish context and provided the
□ stereotypical interpretation of figural
fragments so that possible limitations
of cultural differences are eliminated.
Further studies in Turkish context also
provided validity of the results of
TCT-DP in Turkish context
(Yontar-Togral, 2012).

Data Analysis

Young Adults. To evaluate the trainings and webinars, online survey results were tabulated, and frequency analysis were run. To analyze young adults' questions before and during the webinars, we used thematic analysis to find, if there is any, thematic changes occurred before and during webinar sessions. Interview data analysis included two steps: determining existing categories and utilizing the constant comparative method.

Children. To investigate the impact of 6-week program on children's problem-solving skills and creativity, the following hypothesis were tested.

- Students who attended 6-week program will have higher post-problem-solving scores compared to their pre-study scores.
- Students who attended 6-week program will have higher post-creativity scores compared to their pre-study scores.

To test the two hypothesis, paired-samples t-test was used. Further analyses used to investigate gender differences if there is any.

Results

Webinars and Training

To evaluate the trainings and webinars, an online survey was sent to attendees after completing each task. Even though reminders sent, not all attendees responded the surveys. Response rates were about 30% for the training and from 3% to 17% for each webinar. 92% of the attendees rated the training successful in general while 81% thought that the call of the training and content presented in the training were matching. Only 2 people stated matching content was a problem and rated the training as not successful. Figure 3 presents the distribution of respondents based on whether they would suggest the training to their friends or not. This is evidence of the achievement of the program.





With an open-ended question -what is the most important thing you learned- we aimed to capture whether the purpose of the training and attendees' answers are matched. Among the answers, project cycle was the most common answer followed by planning, importance of problem solving, global and local problems from sustainability perspective, and importance of multidisciplinary actions.

Another important question asked to participants was about when they would use the content in their life. About 75% stated that they would use the information they learned always while nearly quarter of them told they would need them in 6 months. Details are presented in Figure 4.



To further evaluate the effectiveness of webinars on volunteers, we asked them to present their questions before the webinar, and then we recorded their questions and comments during webinars. With thematic analysis we tried to find, if there is any, thematic changes occurred before and during webinar sessions. The first webinar was on qualified education. Main questions and comments' themes before the webinar were about what governments and corporations do or can do for qualified education, through the end of the webinar individual accountability on educational issues raised, and they began asking how to volunteer to achieve qualified education. This theme was emphasized in other webinars also. One of the participants made the following comment during the Webinar 3:

When it is searched, there are various training and volunteering opportunities. If you want and act for it, everything is possible... In the last three months, I developed two projects for an NGO ... we reached to 300 students.

Before the Clean Energy webinar, the main theme of the questions and comments was about how to increase the clean energy resources. During the webinars, participants started to critically evaluate the cleanness of renewable energies. For example, they questioned if solar panels used to heat water had any negative effects to nature or if there are any flaws of renewable energies. To design and develop new projects, flaws in the current systems should be analyzed. Questions and comments during webinars provide us evidence of the thinking orientation of participants.

Another indicator of the impact of Y.O.D.A. program was the number of participants attended and completed webinars and trainings. Among the participants of the Y.O.D.A. program, 40% of them have been participating TEGV programs as volunteers even before the Y.O.D.A program, another 40% who had experience from other NGOs. But most importantly, this program brought over 550 new young people on the board. In other words, this was the first experience of 30% of the participants in volunteer programs.

Among 1656 young people, 447 volunteers finished the trainings by producing 206 individual and 98 team projects. A feedback survey was sent to ones who left the program. Among 904 dropouts, only 35 people responded. Even though response rate was very low, responses still could have some idea about dropouts. Based on their responses, almost half of them could not continue the program because of their busy schedule. Other reasons shared with them were computer and internet problems (4), communication problems (4), health issues (3), and different expectations (3). Six of attendees left the program after completing the training, and 17 of them dropped out during the webinars after the training.

The distribution of project proposals' topics is provided in Figure 5. The project proposals were evaluated by educators. Based on their evaluations, 1/3 of the projects received full score by completely following the project cycles.



Interview with Volunteers

We interviewed four volunteers (two males [Mert and Remzi, pseudonyms], two females [Melek and Meltem, pseudonyms]) to provide depth to data. Three of the interviewees participated in volunteering before whereas it was the first volunteering for the fourth interviewee (Meltem). The interviews lasted from 30 minutes to 75 minutes each. One of the volunteers (Mert, a pseudonym) attended TEGV as a participant when he was a child.

One of the common reasons of joining Y.O.D.A. program as a volunteer was Y.O.D.A.'s being project-based. Mert expressed his reason as follows:

In other TEGV programs we were the ones who manages the activities. However, in Y.O.D.A. it was the children who were on the wheel.

Y.O.D.A.'s project-based approach was a common reason for all of interviewees. This mind-set, they said, changed the way their roles in the classrooms. Their own projects were also very helpful for two reasons. First, their project development process was a different experience than their content trainings such as mathematics or science. Their focus was more on their learning during the trainings about projects and webinars. Second, when they began teaching children, they could be able share their own experiences and show their own examples.

Further, Mert explained why his experience with Y.O.D.A. was different. The trainings and webinars were spread out to a longer time period. So that, they found more time to work on their projects and felt ownership of the program more. Remzi emphasized on the support that they could be able to receive from other TEGV partners. Like Remzi, all participants mentioned at least one specific name that they received immediate and to-the-point support. Melek referred to Y.O.D.A. as a "flexible program" that was her reason to participate. She also complemented Mert's point: "we, volunteers and children, designed and developed together." To sum up, project-based learning made Y.O.D.A. an effective program for both volunteers and children.

Mert was not participating volunteer programs after COVID-19 because he did not believe online programs would be effective. However, Y.O.D.A. changed his mind:

In Y.O.D.A., we would develop projects with children. So, even the program was online, I decided to participate. I never thought that an online program would be effective. Y.O.D.A changed my perspective to online platforms.

One reason why Mert was skeptical about online programs was possible communication problems in online meetings. When he met with children, with their enthusiasm nothing was impossible and that was the key to the good communication, even online. Even though, Mert and everybody else had positive experience with children, they mentioned some difficulties they faced with online platforms. However, they specifically mentioned that these difficulties were not caused by the program itself or program's being online but the platform they used. One common problem was that online meeting platform had 40-minute limit for sessions. When the 40-minute session was over and even though volunteers asked to students come back, so many students did not join back. Another problem was related to the medium students logged in. Some of the students used their parents' phone or tablet rather than a laptop PC. Some features such as breakout rooms and some programs such as Padlet did not function well on tablets or phones. Such problems caused limitations to the program. However, in most of the cases volunteers and children found alternative solutions, it was highly suggested to produce better alternative solutions.

Another important discussion was about the disadvantageous groups. Volunteers we interviewed had experience with both types of groups. Their common perspectives that children from disadvantageous neighborhoods were more willing and eager to program and communicate more compared to children from advantageous neighborhoods. "Children fuss over us" said Mert and continued "we were not like them in Bakirkoy unit [higher SES level]; we were somewhat spoiled." He did not use the word "spoiled" with a negative connotation but to emphasize how much children from disadvantageous neighborhood hold on to the program.

Last but not least, we investigated if there was any alleviating effect of previous volunteering experiences with TEGV. It was apparent that Meltem was very excited about her first volunteering experience but also somewhat anxious about managing the children and program. We asked her specifically how she managed her anxiety. She mentioned about her coping mechanism with such situations. During the trainings and webinars, she took notes about the project cycle as well as strategies on communicating with students and dealing with difficult issues. She emphasized that her notes were incredibly helpful for many cases. For situations that she did not know how to react, she called the unit director, "who was extremely helpful and reachable person." Another strategy she used was to prepare well before each session with her partner. They went over the volunteer guide, take notes, and discuss if there was any change necessary for any section. They even set who would begin the session. With all their preparation, her anxiety alleviated, and she only had excitement about the program.

The rest of the volunteers did not have similar anxiety. However, they said they always found a newness effect to their programs to feel like the first time. Remzi said: I volunteered at Zeyrek Unit, but it was Van Muradiye Unit this time. So, it was a new unit, different children. I mean it was a new experience again.

Mert said when he opened his laptop's lid, he felt like he opened the classroom door. So, it was still exciting with one difference: "I know what I should do now, and I am much better at communicating with children." In short, previous experience of volunteering with TEGV does not reduce the excitement at all but help them better each time they volunteer. All of them were promoting volunteering at TEGV to their friends and relatives and recruiting new volunteers. For example, Remzi changed his volunteering unit -more than one-and-a-half-hour drive one way- just to make her cousin begin volunteering at TEGV.

Problem-Solving Skills and Creativity of Children

In Figure 8 distributions and in Table 3 and Table 4 summary statistics of pre- and post-scores of problem-solving and creativity measures, respectively, are presented.







Figure 8. Distributions of pre- and post-scores of problem-solving and creativity measures.



Table 3

Summary	/ Statistics	of Pre-	and Post-	Test for	Problem	Solving
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	Problem-Solving								
	То	tal	Female		Male				
	Pre	Pre Post		Post	Pre	Post			
Mean	100,11	103,84	99,48	102,55	100,78	105,22			
Std. Dev.	11,16	12,66	12,26	11,54	10,04	13,84			
Std. Err. Mean	1,49	1,69	2,28	2,14	1,93	2,66			
95% CI Upper	103,10	107,23	104,15	106,94	104,75	110,70			
95% CI Lower	97,12	100,45	94,82	98,16	96,81	99,75			
Ν	56,00	56,00	29,00	29,00	27,00	27,00			
Skewness	-0,45	0,18	-0,72	0,35	0,17	-0,01			
Kurtosis	-0,37	-0,06	-0,35	-0,17	-1,00	0,10			

Table 4

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Summary Statistics of Pre- and Post-Test for Creativity

	Creativity						
	Total		Fen	Female		ale	
	Pre	Post	Pre	Post	Pre	Post	
Mean	17,98	23,64	18,48	25,93	17,44	21,19	
Std. Dev.	8,03	9,20	8,93	9,01	7,07	8,91	
Std. Err. Mean	1,07	1,23	1,66	1,67	1,36	1,71	
95% CI Upper	20,13	26,11	21,88	29,36	20,24	24,71	
95% CI Lower	15,83	21,18	15,09	22,50	14,65	17,66	
Ν	56,00	56,00	29,00	29,00	27,00	27,00	
Skewness	0,53	0,96	0,54	0,89	0,40	1,32	
Kurtosis	-0,43	0,76	-0,62	0,26	-0,43	2,51	

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In Figure 9, children's problem-solving scores are converted into descriptive terms based on standard scores obtained from the TOPS-3E: NU standardization sample comprised 1.375 children ages 6 year 0 months through 12 years 11 months who resided in 45 states and Washington, DC in the United States. This categorization should be used with cautiously because normative data has not been collected from Turkish sample. However, to have an overall sense of change between pre- and post-test scores, this categorization gives us valuable insights. One of the most important changes between pre- and post-test results, about 10% of the students are categorized as superior or gifted or very advanced category while there was no single student in these categories in pre-test. Another important change is the decrease of average and below average category and increase in above average category.



Figure 9. Tree-map of percentage of children in each descriptive terms based on pre- and post-test of problem solving.

In Figure 10, children's creativity scores are converted into scheme of the screening classification by age groups based on the results of the standardization studies for the various

German samples and sub-samples (N-total = 2519). "As several studies and personal feedback from international researchers indicate, the norms derived from the German samples should be well applicable to other populations in other countries. This is especially true to those with a similar European and/or Western cultural and/or socio-economic background" (Urban, 2010, p. 40). Thus, to have an overall sense of change between pre- and post-test scores, this classification gives us valuable insights. One of the most important changes between pre- and post-test results, about 7% of the students are categorized as far above average and extremely high above average while there was no single student in these categories in pre-test. Another important change is the dramatic decrease in far below average category and increase in average category. However, no student is identified in phenomenal-top category.



Figure 10. Tree-map of percentage of children in each class based on pre- and post-test for creativity. A = Far below average, B = Below average, C = Average, D = Above average, E = Far above average, F = Extremely above average, G = Phenomenal.

We tested the difference between pre- and post-problem-solving skills using paired-samples t-test considering overall sample and grouped by gender. The results from the pre-test (M = 100.11, SD = 11.16) and post-test (M = 103.84, SD = 12.66) problem-solving measure indicate that the program resulted in a statistically significant improvement in problem-solving skills, t(55) = 2.06, p = .022, Cohen's d = 0.31. Similarly, statistically significant improvement found in female children (t[29] = 1.73, p = .047, Cohen's d = 0.26) while no statistically significant improvement was not observed among male children (t[27] = 1.36, p = .093, Cohen's d = 0.38). Similar analyses were conducted to compare pre- and post-test of creativity. Statistically significant results were found overall and within gender groups (see Table 5).

Table 5

	M Pre-Test	M _{Post-Test}	SE	df	t	р	d
Overall	17.98	23.64	1.43	55	3.96	< .000	0.65
Female	18.48	25.93	2.00	28	3.72	< .000	0.83
Male	17.44	21.19	2.02	26	1.86	.037	0.46

Paired-Samples t-Test Results for Test of Creativity

Discussion and Conclusions

The purpose of the current report is to examine the effectiveness of Y.O.D.A. program on volunteers and the impact of it over 6-week program delivered by volunteers on children. With this project, we aimed to improve participants problem-oriented thinking and teach them project cycle. Furthermore, we aimed to evaluate the impact of the program through the ultimate beneficiaries: children. We investigated the change in their problem-solving skills and creativity after the 6-week program of project-oriented thinking and project cycle.

TEGV, in partnership with BofA, had two level purpose with Y.O.D.A. program. Donating young people at ages of 18-25 with problem-oriented thinking and project cycle experience was an important level of achievement. As the second level of achievement, skills obtained should have been practiced in a real-life setting. TEGV volunteers equipped with problem-oriented thinking skills and project cycle experience met over 600 children ages of 9 through 14 in a 6-week education program.

Even though not all the participants could not finish the program for various reasons, TEGV, in partnership with BofA, reached to 1656 young people. COVID-19 pandemic, along with all difficulties brough some new perspectives to our lives. Extensive use of online programs is one of the many new perspectives. With online programs, it is easier to reach more diverse groups. However, keeping them engage on an online platform might be more difficult than face-to-face programs. During the interviews Y.O.D.A. program's online feature became both advantage and disadvantage. Volunteers, especially one who work, used online meetings and virtual workplaces for their occupations. Online trainings and webinars were burden for them and, as a results, they missed some. On the other hand, the venue-independent online program was also an incentive for the ones who have busy schedule. To some extent, volunteers' personal and occupational lives might explain dropouts. During the program, various topics were offered as webinars, and participants met with experts from different fields. Diversity in webinars was shown as a strong advantage of Y.O.D.A. However, variety in topics were considered by some participants as losing focus, ending with dropouts according to survey results. Considering 447 participants who finished their trainings and webinars and produced 206 individual and 98 team projects, Y.O.D.A. is successful disseminating problem-oriented thinking and project cycle perspectives to young adults.

The second level achievement -implementing acquired skills and impact on childrenwas evaluated based on the progress in children's problem-solving skills and creativity. Children who attended program statistically significantly improved their problem-solving skills and creativity. Children's problem-solving skills and creativity levels were also improved for both gender groups. Even though the increase in males' problem-solving skills was not statistically significant, the increase was practically significant (Cohen's d = 0.38). The effect of the 6-week program on children's creativity was dramatic, especially for females. Statistical findings were supported by interview results too. Overall analysis also showed statistically and practically significant impact of the program on students' problem-solving skills and creativity. To sum up, we have sufficient evidence that shows the impact of the program on young adults and students. We tested the difference between pre- and post-problem-solving skills using paired-samples t-test considering overall sample and grouped by gender. The results from the pre-test (M = 100.11, SD = 11.16) and post-test (M = 103.84, SD = 12.66) problem-solving measure indicate that the program resulted in a statistically significant improvement in problem-solving skills, t(55) = 2.06, p = .022, Cohen's d = 0.31. Similarly, statistically significant improvement found in female children (t[29] = 1.73, p = .047, Cohen's d = 0.26) while no statistically significant improvement was not observed among male children (t[27] = 1.36, p = .093, Cohen's d = 0.38). Similar analyses were conducted to compare pre- and post-test of creativity. Statistically significant results were found overall and within gender groups (see Table 5).

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Appendix A

Interview Questions for Volunteers

- 1. Please share your reasons to join Y.O.D.A. program as a volunteer.
- 2. What are best sides of being TEGV volunteer?
- 3. During the program
- a. What worked well?
- i. Please tell me more what made you happy.
- b. What did not work well?
- i. If so, what kind of issues/difficulties you have faced?
- c. What would be your suggestions to improve volunteering process?
- 4. What did you learn?
- 5. How was the trainings and webinars?
- a. Did you learn new things? If so, please elaborate more.
- 6. Were the trainings satisfactory for your experience with children?
- 7. Please share your experience with children.

8. If you worked as a TEGV volunteer, would you compare your experiences among different programs?

- 9. How was the workload during this program?
- 10. Would you be a volunteer again?
- 11. Would you suggest others to be TEGV volunteer? If so, why?

Appendix B

The Test for Creative Thinking - Drawing Production (TCT-DP)

An artist left this painting unfinished without knowing what to complete. You are asked to complete this picture. You can draw whatever you want. There is nothing right or wrong answer based on your drawings. Everything you draw will be right... You can start drawing and don't worry about time... But remember, you don't have an hour to complete the picture!



