

Concord Evaluation Group

Design Squad Global Outreach Partner Survey Report

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Executive Summary

Background

In 2017, Concord Evaluation Group (CEG) conducted an outreach partner evaluation for Design Squad Global (DSG). DSG is produced and managed by WGBH Educational Foundation, a premier public broadcaster in the US, with major funding from the National Science Foundation. WGBH partnered with FHI 360, a nonprofit human development organizations working in 70 countries, to implement DSG around the globe.

In the DSG program, children in afterschool and school clubs explored engineering through hands-on activities, such as designing and building an emergency shelter or a structure that could withstand an earthquake. Through DSG, children also had the chance to work alongside a partner club from another country. Partner clubs shared their experiences by exchanging design ideas, photos, and videos. DSG's goal was to help children develop their global competency by learning more about each other's cultures, communities, and lives.

DSG strove to provide real-world engineering projects that were meaningful and socially relevant to communities around the world, with the goal of helping children begin to see themselves as young engineers with the power to make a difference. DSG was designed to help children see engineering as a dynamic career path and an achievable goal. To that end, DSG's objective was to help children learn creative problem solving, the design process, science and engineering concepts in context, global competency, and teamwork, listening, and sharing.

CEG was hired to conduct a survey of DSG outreach partners. The survey included two types of partners: (1) organizations responsible for disseminating information about DSG as well as DSG resources nationally and internationally, and (2) local-level partners that implemented DSG clubs at their sites. CEG developed a survey and invited all partners to participate. Partners were given six months to respond to the survey.

Participants

We received surveys from four out of five national dissemination partners: Girl Scouts of the USA, YMCA, National Girls Collaborative Project, and the Promise Neighborhoods Institute. We also received surveys from 16 organizations that

implemented DSG clubs at their local sites, three were from abroad. Programs included:

1. The Latino STEM Alliance in MA
2. Old Colony Y, MA
3. Dorchester YMCA, MA
4. Providence Afterschool Alliance, RI
5. Castle Park Middle School, CA
6. Our Lady of Lourdes STEM, PA
7. Girls Inc. of the Pacific Northwest
8. Greater Twin Cities YMCA, MN
9. Woodbury YMCA, MN
10. Explora Science Center, NM
11. Delta Health Alliance, MS
12. Girl Scouts of Central Texas – Troop 1587
13. Tongue River Valley Community Center, WY
14. YMCA in Peru
15. Benjamin Franklin Science Corner in Paraguay
16. USAGSO-Shanghai Junior Troop 5881

Dissemination partners reported serving a diverse audience. More than one-third of the populations served by partners were white (36%), 22% were Hispanic, Latino/a, or Spanish, 18% were Black or African-American, and 11% were Asian. An additional 12% were categorized as “other ethnicities.” The partners served diverse audiences in terms of household income, too. The majority of audiences served were low income (63%), followed by middle income (28%), and upper income audiences (15%).

Club partners also reported serving diverse audiences. More than one-third of the communities served were Hispanic, Latino/a, or Spanish (37%), 31% were white, and 21% were Black or African-American. Most of the audiences served by clubs were low income (55%), followed by medium (27%), and high income audiences (18%).

Findings

The evaluation found that DSG reached a very diverse audience, that it was appropriate for the audiences served, that it had positive impacts on children and club leaders, and will likely continue to be used and disseminated by WGBH's partners. Below, is a high-level summary of findings:

Outreach

One dissemination partner was able to provide data on the reach of its DSG outreach efforts. Their responses are summarized below:

- Out of the 2,500 to 4,000 people who generally open its emails, between 3,000 and 3,500 people open its DSG-related messages, specifically.
- Out of a typical click-through rate of 5%, 3% of people are opening DSG-related messages AND subsequently clicking on the provided DSG links.
- On its Facebook page, DSG posts have reached 31,497 people, have been “liked” 440 times, and shared 77 times.
- On its Twitter account, 151 people have “liked” its DSG posts and retweeted them 6 times.

What DSG Resources were Used or Disseminated

- The most commonly used or disseminated resources were the DSG Club and Club resources including website, outreach flyers, Club Guides, Club Leader Training, and videos (by 19 out of 20 partners).
- Other frequently used or disseminated resources included the hands-on activities (17 out of 20), the PBSKIDS website (14 out of 20), and the Educator Guides (12 out of 20).
- One dissemination partner modified the DSG Club Guide for its program sites so that it fit better into its own engineering curriculum.

How DSG Resources were Used

- Dissemination partners reported sharing the resources with their network via e-newsletters, social media (Facebook and Twitter), webinars, blog postings, guest articles, and professional conversations.
- Most clubs used the Club Guide and activities as they were designed and ran 6- or 12-week clubs.

- Three club leaders used DSG simply to introduce children to the engineering design process before implementing their own engineering curriculum.
- Two partners reported using the DSG resources for teacher professional development and/or curriculum development.
- One club leader ran the DSG club and then added other Design Squad activities from the website to supplement DSG.
- Another club leader reported that her school integrated DSG into the curriculum on an ongoing basis.

How Well Does DSG Match the Partners' Missions?

- All of the clubs and dissemination partners reported that DSG matched well with their organizations' missions.

Positive Feedback about the DSG Experience

- The DSG resources mentioned most often as club leaders' favorites included the Club Guide and hands-on activities.
- Two club leaders reported that the Educator Guide was their favorite resource.
- Two club leaders reported that the DSG website has been a useful resource for them.
- Two leaders mentioned that the videos were helpful to them.
- Two leaders reported:
 - *The 6-week club guides are my favorite. It is rare that we find such complete resources for our particular context. The low cost supplies are very easy to source. This is a boon to a program that is underfunded. Additionally, it is beneficial for children to be able to go home and investigate and produce many iterations of a project that they may have previously tested to failure in their original exploration.*
 - *The educator guides are monumental. They help folks prepare with little time and they are easily accessible and quick to deliver content.*

Challenges with the DSG Experience

- The most frequently mentioned challenge for clubs was difficulty communicating with their international partners.
- The most common problems related to communication involved working at a different pace than the partner clubs and logistical problems related to sharing pictures and other information.
- Other challenges included lack of experience with Facebook, difficulties gathering resources (one club), and specific activities that were not engaging because the children have seen them in other contexts.

Appropriateness for Audiences

- We asked club leaders to comment on the appropriateness of DSG for their target audiences. All of the organizations reported that DSG was indeed appropriate for them.

Observed Impacts on Children

- Club leaders reported observing only positive impacts on children. Leaders reported that children enjoyed the activities, gained a greater understanding of engineering and science, expressed more interest in engineering after participating, could relate to what it means to be an engineering after trying DSG, and learned how to work with teams.
- One partner reported:

In our programs, DSG provided a set of tools to expand students' awareness and beliefs about their own creativity, the power of their creativity in mastering new concepts, and the tangible opportunities to utilize those creative skills for real-life problem solving. Of special note was the environment that DSG has created for critical thinking, especially as it pertains to subject matter that is traditionally challenging to translate from concept into tangible experience, as well as systems thinking. Students were provided with opportunities to build scaffolding skills, which allowed them to connect otherwise discrete academic concepts to larger systems-thinking, identifying these connections in their everyday environments. Our leaders stressed that this skill has followed students beyond content covered by DSG to other domains of traditional school-based learning. Additionally, the club experience has provided students with space to hone their own self-regulation and leadership skills.

Teachers and other school staff have seen an increased tendency for students who participate in DSG to be self-starting problem solvers, and teachers are now witnessing students utilizing systems thinking throughout school subjects. This is an experience that has otherwise been challenging to design within the school setting.

Suggestions for Reaching Target Audiences

- We asked club leaders to suggest ways to better reach members of their target audiences with DSG resources. Suggestions included using social media, having materials translated into Spanish, and offering grants to educators.

Three dissemination partners suggested the following:

- *We find one of the most effective ways to spread knowledge about a resource, and to make sure it is used, is to have educators share it with their colleagues. The resource then comes from a trusted and vetted source. We would encourage DSG to work with existing Club leaders to help spread the word amongst any networks they may be involved in.*

Plans for Future Use of DSG

- All club leaders reported that they planned to continue using DSG in the future, with their students and as part of professional development efforts. Some reported planning to use DSG on a regular basis in their classrooms, while others expected to use as an illustration of engineering and the design process. Still others expected to lead professional training sessions on the design process for teachers.

Working with WGBH as a Partner

- All partners reported having a positive working relationship with WGBH. For example, one partner reported:

WGBH has been a wonderful partner to work with. They are clear, consistent, and quick with their communication and expectations. They are flexible with delivery and communication methods, which is necessary when working with our audience. They provide well-rounded resources and are mindful of equity in the work they do. Finally, they are extremely collaborative in their approach and have treated us less as a simple dissemination mechanism and more as a partner, continually soliciting feedback for improvement and connecting us with other efforts or like-

*mind*ed organizations.

- One partner did report experiencing challenges with respect to contract issues.

Background

The Design Squad Global Program

With major funding from the National Science Foundation, Design Squad Global (DSG) was produced and managed by WGBH Educational Foundation, a premier public broadcaster in the US. FHI 360, a nonprofit human development organization working in 70 countries, conducted formative research on the project and was a partner on dissemination activities.

In DSG, children in afterschool and school clubs explored engineering through hands-on activities, such as designing and building an emergency shelter or a structure that could withstand an earthquake. Through DSG, children also had the chance to work alongside a partner club from another country. Partner clubs shared their experiences by exchanging design ideas, photos, and videos. DSG's goal was to help children develop their global competency by learning more about each other's cultures, communities, and lives.

DSG strove to provide real-world engineering projects that were meaningful and socially relevant to communities around the world, with the goal of helping children begin to see themselves as young engineers with the power to make a difference. DSG was designed to help children see engineering as a dynamic career path and an achievable goal. To that end, DSG's objective was to help children learn the following content and skills:

- *Creative Problem Solving.* To help children use their imaginations and analytical skills through open-ended, hands-on engineering challenges.
- *The Design Process.* To help children learn to use a series of tried-and-true steps to think through and work out a problem.
- *Science and Engineering Concepts in Context.* To help children apply science and engineering concepts as part of their own iterative design process.
- *Global Competency.* To help children explore our interconnected world and learn how to communicate and collaborate with people who have different perspectives, cultures, and backgrounds.
- *Teamwork, Listening, and Sharing.* To help children understand the importance of teamwork and develop an openness to new ideas, ways of thinking, and unfamiliar situations.
- *Making a Difference!* To provide a way for children to experience engineering and invention as powerful tools for change.

Evaluation

CEG was hired to conduct a survey of DSG outreach partners. The survey included two types of partners: (1) organizations responsible for disseminating information about DSG as well as DSG resources nationally and internationally, and (2) local-level partners that implemented DSG clubs at their sites.

CEG developed a survey and invited all partners to participate. Partners were given six months to respond to the survey.

Participants

Dissemination Partners

We received surveys from four out of five national dissemination partners: Girl Scouts of the USA, YMCA, National Girls Collaborative Project, and the Promise Neighborhoods Institute.

Mission and Reach

Each organization's mission and reach is summarized below:

Girl Scouts of the USA

Girl Scouting builds girls of courage, confidence, and character, who make the world a better place.

Girl Scouts serves girls across the country, with troops in every zip code.

YMCA

The Y is for everyone. YMCA's programs, services and initiatives enable kids to realize their potential, prepare teens for college, offer ways for families to have fun together, empower people to be healthier in spirit, mind and body; prepare people for employment, welcome and embrace newcomers and help foster a nationwide service ethic.

YMCA is present in over 2,000 communities around the US and in 119 countries.

National Girls Collaborative Project

The vision of the NGCP is to bring together organizations throughout the United States that are committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM).

The National Girls Collaborative Project is a national network of approximately 16,000 girl-serving STEM programs, reaching over 20 million girls, across 41 states.

Promise Neighborhoods

The Promise Neighborhoods Institute at PolicyLink (PNI) provides resources and guidance to build and sustain burgeoning Promise Neighborhoods. PNI assists

Promise Neighborhoods in connecting local resources to wrap children in education, health, and social supports from the cradle-to-college-to-career; and serves as a link to federal, public, and private investors. PNI also provides Promise Neighborhoods' communities with leadership and management coaching, communications strategy, and other resources that support their efforts to ensure that children and their families can live in communities of opportunity.

PNI is a national technical assistance provider that partners with more than 60 communities across the country.

Audiences Served

More than one-third of the populations served by partners were white (36%), 22% were Hispanic, Latino/a, or Spanish, 18% were Black or African-American, and 11% were Asian. An additional 12% were categorized as "other ethnicities." The partners served diverse audiences in terms of household income, too. The majority of audiences served were low income (63%), followed by middle income (28%), and upper income audiences (15%).

Club Partners

We received surveys from 16 organizations that implemented DSG clubs at their local sites, three were from abroad. Programs included:

1. The Latino STEM Alliance in MA
2. Old Colony Y, MA
3. Dorchester YMCA, MA
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5. Castle Park Middle School, CA
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Mission and Reach

The programs had a lot in common with respect to their missions. Some examples follow:

- To inspire and empower students interested in STEM education and careers while fostering development of “21st century skills” (e.g. collaboration, critical thinking, and creativity).
- To create opportunities for inspirational discovery and the joy of lifelong learning through interactive experiences in science, technology, engineering, art, and math.
- To inspire girls to be strong, smart, and bold.
- To provide a pre-birth to career pipeline of services for families.

Club partners reported serving the following communities:

- Greater Boston, MA
- Brockton, MA
- Dorchester, Roxbury, and Mattapan, MA
- Greater Providence, RI
- Chula Vista, CA
- Nine rural counties in central PA
- North Portland, the Dalles, Gresham and Salem, OR
- Greater Twin Cities, MN
- Woodbury, MN
- South Valley area of Albuquerque, NM
- Indianola, MS
- Pflugerville and Austin, TX
- Western WY
- Lima, Peru
- Greater Asuncion, Paraguay
- Greater Shanghai, China

Audiences Served

Partners reported serving diverse audiences. More than one-third of the communities served were Hispanic, Latino/a, or Spanish (37%), 31% were white, and 21% were Black or African-American.

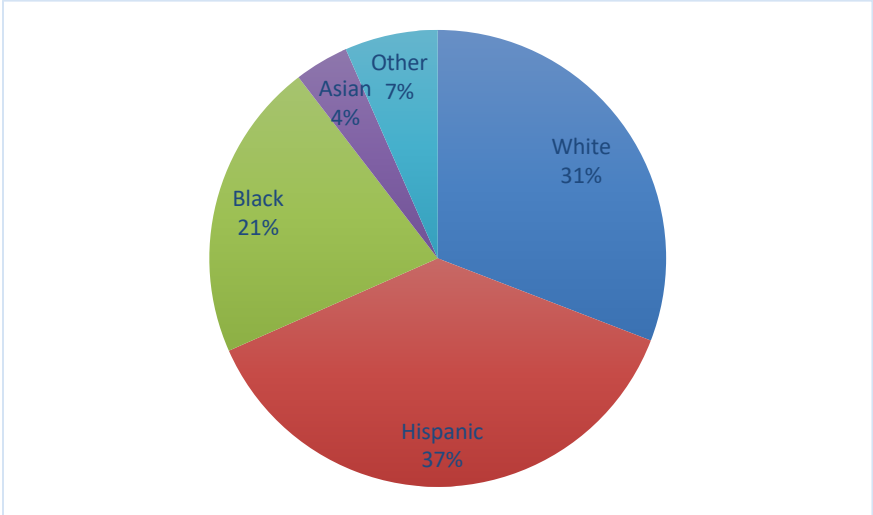


Figure 1. Races and ethnicities of partner audiences.

Most of the audiences served were low income (55%), followed by medium (27%), and high income audiences (18%).

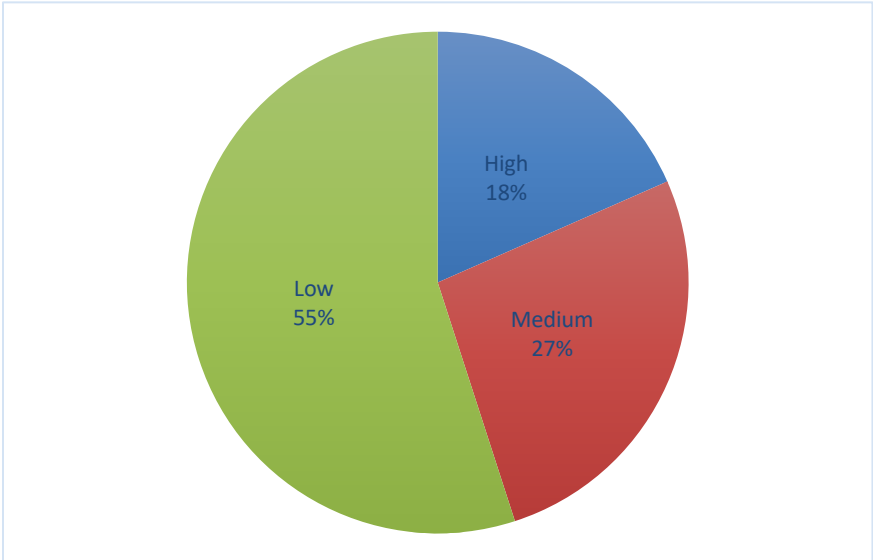


Figure 2. Income levels of partner audiences.

Three partners served communities that were majority (more than 2/3) white. Three served communities that were majority Latino/a. Only one partner served communities that were majority Black or African-American.

Seven out of 16 partners served communities that were majority low income. Another three served communities that were majority middle income. Two partners served communities that were majority high income.

Findings

Dissemination Partners

The four Dissemination Partners reported disseminating the following DSG resources to their organizations' sites/programs (direct program providers only) or through their network:

- DSG Club and Club resources including website, outreach flyers, Club Guides, Club Leader Training, videos, etc. (n = 4)
- PBSKIDS website (n = 2)
- Online design challenges (n = 2)
- Hands-on activities (n = 2)
- Educator Guides (n = 2)
- Videos (n = 1)

Direct program providers reported using the curricula in their programming. Others reported sharing the resources with their network via e-newsletters, social media (Facebook and Twitter), webinars, blog postings, guest articles, and professional conversations.

Girl Scouts USA was involved heavily in pilot testing of DSG resources to fit the needs of their organization and DSG activities have been/will be modified for the organization's engineering series and badges for girls in grades K-5 (launched in summer 2017) and 9-12 (in progress).¹

One dissemination partner was able to provide data on the reach of its DSG outreach efforts. Their responses are summarized below:

- How many people open your email messages, generally?
 - 2,500-4,000
- How many people open your DSG-related messages, specifically?
 - 3,000-3,500
- What are your click-through rates, generally (In other words, how many people are opening your messages AND subsequently clicking on the provided links)?
 - 5%
- What are your click-through rates for DSG-related messages, specifically

¹ Two Girls Scout troops responded to our request for surveys. Their results appear below in the findings related to club partners.

(In other words, how many people are opening your DSG-related messages AND subsequently clicking on the provided DSG links?)

- 3%
- How many people are following your organization on Facebook, generally?
 - 5,046
- How often are DSG posts liked, shared, or favorited, specifically?
 - Reached: 31,497
 - Liked: 440
 - Shared: 77
- How many people are following your organization on Twitter, generally?
 - 9,347
- How often are DSG posts liked, shared, or favorited, specifically?
 - Liked: 151
 - Retweeted: 6

We asked dissemination partners to offer suggestions for better reaching the target audience. Three dissemination partners suggested the following:

- *We find one of the most effective ways to spread knowledge about a resource, and to make sure it is used, is to have educators share it with their colleagues. The resource then comes from a trusted and vetted source. We would encourage DSG to work with existing Club leaders to help spread the word amongst any networks they may be involved in.*
- *Continue to partner with major youth-serving organizations.*

We asked partners to comment on the degree to which DSG matched with their mission. **All dissemination partners reported that DSG *did* match well with their organizations' missions.** Partners shared the following feedback:

- *DSG resources have been a great way for girls to get hands-on experience with the design process. The open-endedness of the challenges gives girls the opportunity to think creatively and create multiple solutions to the same problem/challenge.*
- *In our organization, we have Leader's Clubs which matched up nicely with the DSG format in most cases.*
- *The DSG resources are very well aligned with the needs of our sites and are especially helpful for supporting age groups in the middle years of the cradle-to-career continuum.*

We asked dissemination partners to report any evidence that DSG had an impact on children in their programs.

- *In our programs, DSG provided a set of tools to expand students' awareness and beliefs about their own creativity, the power of their creativity in mastering new concepts, and the tangible opportunities to utilize those creative skills for real-life problem solving. Of special note was the environment that DSG has created for critical thinking, especially as it pertains to subject matter that is traditionally challenging to translate from concept into tangible experience, as well as systems thinking. Students were provided with opportunities to build scaffolding skills, which allowed them to connect otherwise discrete academic concepts to larger systems-thinking, identifying these connections in their everyday environments. Our leaders stressed that this skill has followed students beyond content covered by DSG to other domains of traditional school-based learning. Additionally, the club experience has provided students with space to hone their own self-regulation and leadership skills. Teachers and other school staff have seen an increased tendency for students who participate in DSG to be self-starting problem solvers, and teachers are now witnessing students utilizing systems thinking throughout school subjects. This is an experience that has otherwise been challenging to design within the school setting.*
- *Children enjoyed connecting with other clubs. Most kids (30 of the 40 responding to "what they liked") reported that they enjoyed working with the other club, sharing experiences with the other club and seeing different perspectives. Kids wanted even more interaction and more activities: Half of the kids reported that they would like better and more communication with their partner clubs, such as video messages, facetime/skype or in person meetings. A few kids also commented that it would be good to make sure the clubs are doing each activity at the same time. Additionally, kids want to do more projects like the ones in the Design Squad Global series. While kids enjoyed working with others and sharing experiences with partner clubs, leaders did not feel that the global component enhanced the experience. This was primarily due to the connection, communication, and timing issues associated with clubs in different countries and time zones.²*

² Although some leaders remarked that time zone differences were a challenge for them and their partner clubs, DSG never intended for clubs to communicate in real-time. It seems that leaders are using the term "time zone" as a shorthand way of describing the delays in working with clubs that are on different schedules.

Promise Neighborhoods collected its own evaluation data during the testing of DSG. The full report is provided in the Appendix.

All dissemination partners reported having a positive working relationship with WGBH. One partner did report experiencing challenges with respect to contract issues.

- *WGBH has been a wonderful partner to work with. They are clear, consistent, and quick with their communication and expectations. They are flexible with delivery and communication methods, which is necessary when working with our audience. They provide well-rounded resources and are mindful of equity in the work they do. Finally, they are extremely collaborative in their approach and have treated us less as a simple dissemination mechanism and more as a partner, continually soliciting feedback for improvement and connecting us with other efforts or like-minded organizations.*
- *We've had a very positive experience. WGBH staff are very flexible, responsive, and eager to collaborate. We look forward to continuing to work together in the future!*
- *Communications on the contract negotiations from the DSG leadership was lacking. We'd also recommend clarifying the monetary amount that would be awarded for the grant. Ultimately, we did not officially partner with DSG this year as we did not get the contract signed in time.*

Club Partners

What DSG Resources were Used

The 16 Partners that implemented DSG clubs at their local sites reported using the following DSG resources:

- DSG Club and Club resources including website, outreach flyers, Club Guides, Club Leader Training, videos, etc. (n = 15)
- Hands-on activities (n = 15)
- PBSKIDS website (n = 12)
- Videos (n = 12)
- Educator Guides (n = 10)
- Online design challenges (n = 7)
- Games (n = 5)
- Other: Girl Scouts provided a modified DSG guide/script/activities (n = 2)

How DSG Resources were Used

We asked club leaders how they used the DSG resources. Some leaders used DSG simply to introduce children to the engineering design process before implementing their own engineering curriculum, for example:

- *We used them during regular meetings to introduce girls to engineering process.*
- *We had a look at the PBS Kids websites for children and adults before starting the program. We used the activities and educator guides supplied to us through our organization rather than the DSG ones.*
- *Used them for training and used them to implement and talk about the Engineering Process.*

Most clubs used the Club Guide and activities as they were designed and ran 6- or 12-week clubs. Some examples of their comments follow:

- *We used resources to complete the 12-week curriculum. We used the website and videos for tips on explaining the activities to children. We did the hands-on activities weekly. The DSG guides were used to show how to engage and to explain the process.*
- *We ran DSG clubs primarily in the classroom setting.*

- *We did DSG clubs in our after-school program and teen drop-in program.*
- *We use DSG resources as instructional materials during the implementation of the DSG pilot and thereafter. Any time we do STEM extracurricular activities the DSG club guide, website, online lessons, design challenges, and games serve as our primary sources.*

One leader ran the DSG club and then added other Design Squad activities from the website to supplement DSG:

- *We ran a Design Squad Global club at two middle schools using the ten week curriculum. This wasn't enough material for the time period I was working with (meeting 2x a week for 10 weeks) so I supplemented this with additional design challenges pulled from the website.*

Another leader reported that her school integrated DSG into the curriculum on an ongoing basis:

- *We did the 6- week DSG Club presented as an after-school activity. We used the hands-on activities and educator guides in STEM integration activities throughout the course of the school day. We have also used the online Design Challenges for the Day of the Engineer. And, we always rely on PBS Kids website as a resource.*

Two partners reported using the DSG resources for teacher professional development and/or curriculum development:

- *We used the Design Process to teach teachers an innovative approach to their science classes.*
- *We utilized the website for resources to assist with our own curriculum and curriculum design for our organization. Specifically, the Engineering Design Process documentation was a great help for brainstorming ways to integrate into our curriculum and in our classrooms.*

Two clubs used only 1-2 activities and did not connect with an international partner:

- *We used DSG resources for a week-long summer day camp for youth in our community.*
- *We used several of your resources, including the catapult, the robot hands, the video games, and the hands-on building activities.*

How Well Does DSG Match the Partners' Missions?

All of the clubs reported that DSG matched well with their organizations' missions. Some examples follow:

- *DSG aligns with our vision to serve relentlessly with our community until all can thrive in each stage of life.*
- *The low cost/no cost materials and resources provided by DSG are essential parts of our mission of creating sustainable action in communities. Most of the materials used in DSG projects and challenges are reusable, recyclable materials our partners with little funds can find and collect to use for implementation.*
- *Hands-on activities are a priority for us. Your website includes numerous hands-on challenges. We strive to provide experiences with learner-directed outcomes. Several of your challenges, such as the cardboard builders, do enable the user to change many variables.*
- *We are a public school so teaching design thinking and exposing students to other communities matches our mission.*
- *The DSG mission and activities dovetail very nicely with our STEM robotics program.*

Positive Feedback about the DSG Experience

Most club leaders reported that the Club Guide and hands-on activities were their favorite aspects of the DSG program. Some examples follow:

- *The 6-week club guides are my favorite. It is rare that we find such complete resources for our particular context. The low cost supplies are very easy to source. This is a boon to a program that is underfunded. Additionally, it is beneficial for children to be able to go home and investigate and produce many iterations of a project that they may have previously tested to failure in their original exploration.*
- *The Design Squad Club Guide is my favorite resource. It includes detailed instructions, models and examples for what projects can look like, and helpful tips you can use to guide students as they create their work.*
- *The hands-on activities are engaging and build confidence.*

- *As mentioned above, the cardboard builders activity most closely aligns with our philosophy so was the most engaging. I love the links between the experiments and real events, like “Did you know” from down to the core.*
- *I found the lesson plans for the hands-on activities and the design challenges most helpful, both from the ten week curriculum and from the website.*
- *The parachute is a hit with all the kids. I think the fact that can see their object that they create move helps them a lot. Also, their creativity can truly be seen with the parachute.*

Two club leaders reported that the Educator Guide was their favorite resource:

- *The educator guide was well put together and really helped me to teach this since I had no prior experience.*
- *The educator guides are monumental. They help folks prepare with little time and they are easily accessible and quick to deliver content.*

Two club leaders reported that the DSG website had been the most useful resource for them:

- *As mentioned the general use of the website we found very helpful and a good model and reference for our robotics program.*
- *The interactive website is a great tool.*

Two leaders mentioned that the videos were helpful to them:

- *The videos are a great tool. They help share the message of how DSG works, the videos also inspire creativity.*
- *I also found the videos helpful to a lesser extent; I specifically used a few of the design challenge videos as well as the intro videos that introduced what design squad global was and helped explain the international aspect of it.*

Challenges with DSG Experience

The most frequently mentioned challenge for clubs was difficulty communicating with their international partners. Some examples follow:

- *I wish we could have connected with our partner program in Africa. We were never able to make a connection with a program across the globe.*
- *The aspect of this program that I found the least helpful (or maybe understood least in terms of its purpose) was the “Global” part. In our case, our meeting schedules (and schedules of the kids involved) absolutely could not coordinate, even to day of the week. The time difference made it impossible for us to communicate in real time, even if we wanted to. Our US partner, was not a good partner, and that affected our perspective about the “Global” part of the project. They were non-responsive to our attempts to connect with them for 2 or 3 months, which delayed our start date by several months; eventually when we did connect, it was February, which set us on an impossible time frame for completion with no tolerance for unforeseen schedule changes/cancellations; and then once we had agreed on a meeting schedule, they dropped out of communication with us completely. I’ll admit, we were not much better about trying to reach them after we started the project, because after we did not hear from them (their meetings were supposed to be several days ahead of ours), we did not make an effort on our side.*
- *While I enjoyed the cross-cultural aspect of the program and I think the youth did as well, it was the most challenging piece to put into place. The youth were often asked to fill out worksheets about themselves or the projects to send to the international club-- dealing with printing, scanning and sending these files took a lot of time and energy (and I’m sure was even more difficult for our partner in South Africa). Sending photos and videos was simpler as we could use a cell phone but still could be challenging because of file sizes and having the available staff to really get quality video clips. In addition, we were constantly dealing with issues caused by the two clubs not being on the same timeline or not getting the communications from the other club in time etc. We were never really successful in having the youth exchange design ideas.*

Other challenges included lack of experience with Facebook, difficulties gathering resources, and specific activities that were not engaging:

- *I found the Facebook Group to be my least favorite part--I am not a personal Facebook user. My co-leader and other co-workers are Facebook users.*
- *I come from a very poor school in CA so getting all the resources needed was tough.*

Appropriateness for Audiences

We asked club leaders to comment on the appropriateness of DSG for their target audiences. The organizations all reported that DSG was indeed appropriate for them:

- *DSG resources are very appropriate for my audiences. What I enjoy is that I can pick what kind of activity according to the materials I have and according to my audience. I think that is the best part of DSG.*
- *Great for ages 10 and up.*
- *They were age appropriate for my students 11-13.*
- *We have been able to use the 6-week club guide for students in grades 4-8. The nature of the activities lends itself to a range of designs from basic to much more complex.*
- *Because our group does a lot of STEM activities and live in a city with a lot of resources – we felt that some of the activities were more appropriate for our 4th graders and possibly younger children.*

Observed Impacts on Children

Club leaders reported observing only positive impacts on children. Leaders reported that children enjoyed the activities, gained a greater understanding of engineering and science, expressed more interest in engineering after participating, could relate to what it means to be an engineering after trying DSG, and learned how to work with teams.

- *Our children seemed to be challenged and enjoyed the work a lot. I think they all came away with greater understanding about engineering and inventions. My impression is that it was a positive experience, so I am glad my kids had the opportunity to try it.*

- *I think, on average, the youth expressed more interest in engineering-related material by the end of the program (a few strongly, most slightly or not at all).*
- *Most kids can relate to be an engineer after doing DSG. They find being an engineer is not only to be focus on numbers or complicated reactions, but they can explore what engineers do in the real world.*
- *My students were very interested, they liked to design the products. They also learned about physics.*
- *When implemented correctly, students can express their interests in their community's needs and create solutions to problems they face in their daily lives. Recently we had someone who did not work to understand the Design Squad materials who led sessions for us and we saw if a club leader does not get the concepts or sequencing of the activities, students miss out on the cultural and community competencies DSG imparts.*
- *My students loved the engineering. They especially liked building the tents. They really learned a lot about teamwork.*
- *Children were not well versed in engineering and what it meant before. Now they are interested and like to participate in activities that we may not have had success in prior.*
- *DSG encouraged thought and teamwork.*

Suggestions for Reaching Target Audiences

We asked club leaders to suggest ways to better reach members of their target audiences with DSG resources. Suggestions included using social media, having materials translated into Spanish, and offering grants to educators.

- *Engage the students themselves (or their parents) with the social media objectives.*
- *Use of Instagram, snapchat or their live sharing features would be a logical next step for me. When we do programs, we try to share images via these media because students and parents both like interacting on the sites.*
- *It will be more wonderful if we could more resources translated into Spanish. It is wonderful to be able to work in Spanish.*

- *A mid-career (in-school) teaching fellowship provides an opportunity for teachers to network with a cohort of teachers at the fellowship institution, then teachers return to their home school context and disseminate their new-found information and resources.*

Plans for Future Use of DSG

All club leaders reported that they planned to continue using DSG in the future, with their students and as part of professional development efforts. Some reported planning to use DSG on a regular basis in their classrooms, while others expected to use as an illustration of engineering and the design process. Still others expected to lead professional training sessions on the design process for teachers.

For example:

- *I expect to do DSG as a regular activity.*
- *We have continued to use the DSG design challenges occasionally and will continue to make those resources available to our staff.*
- *I'm planning a teacher training that will focus on DSG and the Design Process. I think is very important for teachers to get to know the Design Process.*
- *Whenever we look to do STEM or science activities, we use the resources provided by our WGBH partners. They are age appropriate, easy to implement, and come at no cost to our small program providers who cannot afford to buy certain curricula and resources.*
- *DSG resources have inspired the development of several activities which are currently being used in our programs including out of school and camps and will continue to be in the future.*
- *We are so impressed with the quality of the resources. We plan on taking the resources to share with two cohorts of teacher training fellows.*
- *We would share information about this wonderful program with others when there appears to be a match. We have had discussions with other organizations regarding the potential future use of DSG resources. We would welcome the collaboration with you to integrate into our program/curriculum or to work with others doing the same.*

- *I may use some of the projects. DSG served as an amazing introduction to design thinking and engineering. Prior to participating we had no curriculum for this. Since our DSG project we have implemented an engineering course and have integrated design thinking into science. It was a great intro to topics we have since run with.*
- *We would like to do it again in the future- would like to find partner program next attempt and coordinate with them. Had no success in working with a partner club as planned.*
- *I am looking forward to our summer day camp for the middle school age students after watching how much fun the younger kids had. I also plan to use the resources and challenges in our after-school program.*

Working with WGBH as a Partner

We asked club partners to report on the process of working with WGBH, if applicable. All the feedback received was positive.

- *The process was great. Communication was effective, the additional support was helpful and clear. We will continue to work alongside WGBH.*
- *WGBH is a great partner. When we've needed any help with understanding or providing new educational opportunities in our area, they help where they can.*
- *We received answers to questions in a very timely manner and felt supported throughout the project. The channel of communication was kept open which was very helpful.*
- *It was a wonderful program offered to us. We are appreciative of the opportunity. The resources available to PBS are greater than the small NPO's and partner organizations running this work.*
- *Everything was organized and well thought out!*

Summary

CEG conducted a DSG outreach partner evaluation in 2017. We received surveys from four out of five national dissemination partners: Girl Scouts of the USA, YMCA, National Girls Collaborative Project, and the Promise Neighborhoods Institute. We also received surveys from 16 organizations that implemented DSG clubs at their local sites, three were from abroad.

The evaluation found that DSG reached a very diverse audience, that it was appropriate for the audiences served, that it had positive impacts on children and club leaders, and will likely continue to be used and disseminated by WGBH's partners. Below, is a high-level summary of findings:

Outreach

One dissemination partner was able to provide data on the reach of its DSG outreach efforts. Their responses are summarized below:

- Out of the 2,500 to 4,000 people who generally open its emails, between 3,000 and 3,500 people open its DSG-related messages, specifically.
- Out of a typical click-through rate of 5%, 3% of people are opening DSG-related messages AND subsequently clicking on the provided DSG links.
- On its Facebook page, DSG posts have reached 31,497 people, have been "liked" 440 times, and shared 77 times.
- How many people are following your organization on Twitter, generally?
 - 9,347
- On its Twitter account, 151 people have "liked" its DSG posts and retweeted them 6 times.

What DSG Resources were Used or Disseminated

- The most commonly used or disseminated resources were the DSG Club and Club resources including website, outreach flyers, Club Guides, Club Leader Training, and videos (by 19 out of 20 partners).
- Other frequently used or disseminated resources included the hands-on activities (17 out of 20), the PBSKIDS website (14 out of 20), and the Educator Guides (12 out of 20).
- One dissemination partner modified the DSG Club Guide for its program sites so that it fit better into its own engineering curriculum.

How DSG Resources were Used

- Dissemination partners reported sharing the resources with their network via e-newsletters, social media (Facebook and Twitter), webinars, blog postings, guest articles, and professional conversations.
- Most clubs used the Club Guide and activities as they were designed and ran 6- or 12-week clubs.
- Three club leaders used DSG simply to introduce children to the engineering design process before implementing their own engineering curriculum.
- Two partners reported using the DSG resources for teacher professional development and/or curriculum development.
- One club leader ran the DSG club and then added other Design Squad activities from the website to supplement DSG.
- Another club leader reported that her school integrated DSG into the curriculum on an ongoing basis.

How Well Does DSG Match the Partners' Missions?

- All of the clubs and dissemination partners reported that DSG matched well with their organizations' missions.

Positive Feedback about the DSG Experience

- The DSG resources mentioned most often as club leaders' favorites included the Club Guide and hands-on activities.
- Two club leaders reported that the Educator Guide was their favorite resource.
- Two club leaders reported that the DSG website has been a useful resource for them.
- Two leaders mentioned that the videos were helpful to them.

Challenges with the DSG Experience

- The most frequently mentioned challenge for clubs was difficulty communicating with their international partners.
- The most common problems related to communication involved working at a different pace than the partner clubs and logistical problems related to sharing pictures and other information.
- Other challenges included lack of experience with Facebook, difficulties gathering resources (one club), and specific activities that were not engaging because the children have seen them in other contexts.

Appropriateness for Audiences

- We asked club leaders to comment on the appropriateness of DSG for their target audiences. All of the organizations reported that DSG was indeed appropriate for them.

Observed Impacts on Children

- Club leaders reported observing only positive impacts on children. Leaders reported that children enjoyed the activities, gained a greater understanding of engineering and science, expressed more interest in engineering after participating, could relate to what it means to be an engineering after trying DSG, and learned how to work with teams.

Suggestions for Reaching Target Audiences

- We asked club leaders to suggest ways to better reach members of their target audiences with DSG resources. Suggestions included using social media, having materials translated into Spanish, and offering grants to educators.

Three dissemination partners suggested the following:

- *We find one of the most effective ways to spread knowledge about a resource, and to make sure it is used, is to have educators share it with their colleagues. The resource then comes from a trusted and vetted source. We would encourage DSG to work with existing Club leaders to help spread the word amongst any networks they may be involved in.*

Plans for Future Use of DSG

- All club leaders reported that they planned to continue using DSG in the future, with their students and as part of professional development efforts. Some reported planning to use DSG on a regular basis in their classrooms, while others expected to use as an illustration of engineering and the design process. Still others expected to lead professional training sessions on the design process for teachers.

Working with WGBH as a Partner

- All partners reported having a positive working relationship with WGBH.
- One partner did report experiencing challenges with respect to contract issues.

Appendix A: Outreach Partner Survey

Design Squad Global Outreach Partner Survey

Please tell us about your experience with Design Squad Global (DSG) resources. Your responses will be kept private and your name will not be associated with your responses in our final report to WGBH or NSF. Please feel free to write as much as you would like. Thank you!

Feel free to collaborate on this survey with others in your organization. **Please only submit one survey per organization.**

Feel free to skip any questions that are not relevant to your organization.

1. Name (enter multiple names, if several people completed the survey):
2. Email:
3. What organization do you represent?
4. Some people who respond to this survey will be national role partners will be reporting on their experience disseminating DSG resources, while others have a more local role and will be reporting on their experience using DSG resources. Which perspective will you be responding from?
 - a. National dissemination partner
 - b. Club or organization that has used DSG resources
 - c. Both
 - d. Other: _____
5. What is your geographic reach? Where are you located? Where are the children you serve located?
6. Briefly, please describe your organization's mission:
7. What is your role in your organization?
8. Please help us understand the ethnic/racial composition of the children you serve (ballpark estimates are fine):

_____ % White
_____ % Latino/a
_____ % African-American
_____ % Asian
_____ % Other (please specify):

9. Please help us to understand the socio-economic status of the children you serve (ballpark estimates are fine):

_____ % High income
_____ % Middle income
_____ % Low income

10. Please tell us which of the DSG resources you have used or shared so far (choose all that apply):

- a. DSG Club and Club resources including website, outreach flyers, Club Guides, Club Leader Training, videos, etc.
- b. PBSKIDS website
- c. Videos
- d. Games
- e. Online design challenges
- f. Hands-on activities
- g. Educator Guides
- h. Other:

11. Please describe all the ways you have used DSG resources.

12. Please describe all the ways you have shared DSG resources with members of your organization and others.

13. How well do the DSG resources match with your organization's mission?

14. If you have used DSG resources, which ones have been your favorite? Please explain:

15. If you have used DSG resources, which ones have been your least favorite? Please explain:

16. If you have used DSG resources, please comment on the appropriateness of the DSG resources for your audiences:

17. If you have used DSG resources with children, have you observed any positive or negative results on the children's engineering-related attitudes, interests, or knowledge? If so, please describe:

18. Are you sharing DSG resources via your organization's website?

- a. Yes
- b. No [skip next question]
- c. Not applicable, I don't control our website content [skip next question]

19. If Yes, please tell us:

- a. What is the web traffic to your site, generally?
- b. What is the web traffic to the portions where DSG resources are shared, specifically?

20. Are you sharing DSG resources via electronic communications (such as e-newsletters or email blasts)?

- a. Yes
- b. No [skip next question]
- c. Not applicable, I don't control our electronic communications [skip next question]

21. If Yes, please tell us:

- a. How many people open your email messages, generally?
- b. How many people open your DSG-related messages, specifically?
- c. What are your click-through rates, generally (In other words, how many people are opening your messages AND subsequently clicking on the provided links)?
- d. What are your click-through rates for DSG-related messages, specifically (In other words, how many people are opening your DSG-related messages AND subsequently clicking on the provided DSG links)?

20. Are you sharing DSG resources via Facebook?

- a. Yes
- b. No [skip next question]
- c. Not applicable, I don't control our Facebook account [skip next question]

21. If Yes, please tell us:

- a. How many people are following your organization on Facebook, generally?
- b. How often are DSG posts liked, shared, or favorited, specifically?

22. Are you sharing DSG resources via Twitter?

- a. Yes
- b. No [skip next question]
- c. Not applicable, I don't control our Twitter account [skip next question]

23. If Yes, please tell us:

- a. How many people are following your organization on Twitter, generally?
- b. How often are DSG posts liked, shared, or favorited, specifically?

24. Please make suggestions for ways to reach more target audience

members with DSG resources:

25. Do you plan to continue using or sharing DSG resources in the future? If so, please explain:
26. Please tell us about the process of working as a WGBH partner. What positive feedback do you have? What improvements could WGBH make?

Thank you!