

**GOODMAN RESEARCH GROUP, INC.**  
*Program Evaluation ❖ Consultation ❖ Market Research*

***BUILDING BIG***  
**OUTREACH EVALUATION**

**Executive Summary**

▷

***Submitted to***  
**WGBH**  
**Boston, Massachusetts**

**March 2001**

# ***BUILDING BIG OUTREACH EVALUATION***

## ***Executive Summary***

### **INTRODUCTION**

Goodman Research Group, Inc. (GRG), a research firm in Cambridge, Massachusetts specializing in the evaluation of educational programs, materials, and services, was contracted by WGBH to conduct the summative evaluation of the NSF-funded *Building Big* outreach project. The *Building Big* TV series premiered in October 2000 and consisted of five programs -- *Bridges, Skyscrapers, Domes, Tunnels, and Dams*. Each program explored one of these structures. The *Building Big* outreach project aimed to reach youth in 5th through 8th grades in formal and informal educational settings as well as in their homes. The outreach's primary goal was to enhance understanding of and interest in the built environment and the science behind big structures.

Ten model communities were selected by WGBH to anchor the *Building Big* outreach campaign. Sites were: Eureka, CA; San Diego, CA; Denver, CO; West Palm Beach, FL; Boise, ID; Bowling Green, OH; Cleveland, OH; Vermillion, SD; Nashville, TN; and Seattle, WA. Within each community, working partnerships were formed between public television stations, youth-serving organizations (e.g., Boys & Girls Clubs, CTCNets, school districts), and local sections of the American Society of Civil Engineers (ASCE). Each community received funding from WGBH as well as *Building Big* educational resources and materials with which to create opportunities for local youth, educators, and engineers to explore civil engineering collaboratively.

### **EVALUATION GOALS**

The summative evaluation's main goal was to assess the influence of the project in local communities. Model communities held Build-a-thons, Activity Hours, and Local Wonders tours while the broader public audience had access to the *Building Big* Activity Guide, Web site, and broadcast series and videos. GRG developed and conducted a number of qualitative and quantitative evaluation activities to assess the project goals and objectives. These are described in the following exhibit.

## Overview of Evaluation Methods and Samples

Project Component	GRG Evaluation Activities	Data Collected	Sites Involved	Evaluation Sample Size
<b>Model Communities Evaluation</b>				
<i>Boston Training Workshop</i>	Pre- and post-training session surveys	July/August 2000	Representatives from 10 model communities	24 attendees, 10 PBS representatives, 5 Community Group leaders, 2 school administrators, 7 ASCE members
<i>Model Community Sites</i>	Site visits to and observations of <i>Building Big</i> activity participants, informal interviews with some participants	November 2000	5 sites: Seattle, WA; Eureka, CA; Boise, ID Vermillion, SD; Nashville, TN	WA: 6 children, 4 adults CA: Build-a-thon attendees, 5 adults SD: 15 children, 3 adults ID: 6 children, 1 adult TN: 27 children, 6 adults
<i>Model Community Outreach Partners</i>	In-depth phone interviews with outreach partners	January 2001	10 model communities	30 stakeholders: one PBS representative, one teacher/group leader, one ASCE member from each community
<i>Model Community Children/Students</i>	Pre- and post-surveys administered to children by program leader before and after exposure to <i>Building Big</i> activities	September-February 2001	At least one youth-serving program in the 10 model communities	176 children ages 8-14 from 9 of 10 communities
<i>Build-a-thon</i>	Surveys available at Build-a-thon	September-November 2000	12 sites: 10 model communities, Boston, Washington, D.C.	789 respondents from 10 of 12 sites
<i>Non-Model Communities</i>	Survey sent to communities not selected as grant recipients	December 2000	14 non-model communities	9 PBS Representatives
<b>Building Big Resources</b>				
<i>Activity Guide</i>	Survey hosted on GRG's web site	December 12, 2000 - January 22, 2001	U.S./ International Activity Guide requestors	614 respondents
<i>Web Site</i>	Survey embedded in <i>Building Big</i> Web site	October 24 - November 12, 2000	Any Web site visitors	163 respondents from 50 states
<i>Home Videos</i>	Postcard survey sent to purchasers of home videos	January-February 2001	Purchasers of the Home videos	181 respondents
<i>Series Viewer Groups</i>	Participants viewed program, completed post-viewing survey, had group discussion	January, 2001	2 sites—Saginaw, MI; West Bloomfield, MI	15 participants
<i>Parent-Child Activity Viewer Groups</i>	Parents and children viewed activity segment, completed post-viewing surveys and had separate group discussions	January, 2001	3 sites—Livonia, MI; Huntsville, AL; Norwich, VT	41 participants: 22 children, 19 adults

## KEY FINDINGS

### **Model community collaborations were perceived to be successful by the partners.**

- Members of each of the three groups (public television, youth-serving organizations, ASCE) remained actively involved in the outreach activities throughout the process. They valued the training workshop before outreach activities began and recalled the value throughout the process.
- For most, community partnerships, particularly those with the ASCE, were new. Participants were impressed with the communication, cooperation, and time devoted to the project by each organization.
- Activities and events were coordinated and executed as planned, and were well attended. Local Build-a-thon attendees reported learning about engineering principles and concepts.
- Different organization partners learned something about the skills and responsibilities of the others. PBS representatives and group leaders learned about engineering principles and concepts. Engineers learned more about the developmental skills and abilities of children.
- Collaborations led to a strong sense of community and lasting working relationships. Partners in nine of the ten sites plan to work together on future projects and to continue *Building Big* activities with new populations of children.

### **Hands-on activities and local projects successfully reached their target audience.**

- Because this is an age group that, according to teachers and group leaders, typically lacks such attention, model community partners valued this outreach, with its compelling content and activities designed for middle school students.
- The deliberate choice of after-school organizations as a primary target audience also worked well in the communities. Group leaders in community organizations found it easy to interest and engage the children and occupy them for a substantial period of time with the activities.

### **Students showed increased knowledge about engineering principles and increased awareness of the impact of engineering on the built environment after *Building Big*.**

- Participating adults believed children were interested in the content and learned a lot about engineers and engineering. Children exhibited curiosity, asked increasingly sophisticated questions of the engineers, and used newly acquired engineering terminology.

- Student survey results confirmed adults' perceptions. After *Building Big*, children showed significantly increased knowledge of engineering principles and awareness of the impact of engineering on the built environment. In particular, girls caught up to boys at post-test.
- Children reported a stronger belief that engineering is interesting after participating in activities and meeting engineers. Boys demonstrated a stronger propensity to actually pursue engineering than did girls.

**Products and resources were wide-reaching, useful, and appealing.**

- Users of a combination of *Building Big* resources felt the activities were adaptable across many ages and the different components complemented one another and, together, enhanced the overall learning experience.

- ***Building Big* Activity Guide:**

Activity Guide users conducted activities with children from pre-K through college. They found the guide professional, well organized, and user-friendly. Educator tips, handouts, and video time cues were useful for planning activities for a wide range of needs and time constraints.

- ***Building Big* Web Site:**

The age of *Building Big* Web site survey respondents ranged from under 12 to over 60. Visitors explored nearly every feature and particularly enjoyed the interactive labs and building challenges.

The Web site was a valuable source of information to supplement new concepts learned from the series. Most were eager to visit the site again and share it with others.

- ***Building Big* Series:**

Series viewers were satisfied with the series overall; they especially enjoyed the historical aspect of the programs. Viewers learned about engineering structures and principles, gained a better understanding of the work involved in built structures, and became more attentive to their own surrounding built environment.

- ***Building Big* Parent-Child Activity Segments:**

Viewers of these segments learned engineering principles and concepts. Parents valued seeing two people working together on a task and trying different approaches after a failure. Parents especially would like to try similar activities with their children.

## RECOMMENDATIONS

### □ **Use current outreach project as a model.**

It is advisable to hold a mandatory training workshop for participants in all collaborating organizations particularly for a wide-reaching outreach campaign such as *Building Big*.

Consider the most appropriate time to hold a training workshop for outreach partners. More lead time would allow the opportunity to incorporate changes in planned activities, while holding a training before resources are available may frustrate those eager to get started.

### □ **Incorporate multiple resources.**

Because users of the products appreciated access to the various modes for learning via print and electronic media, future projects would benefit from similar use of multimedia to implement activities and teach the relevant content.

### □ **Continue to target informal as well as formal educational settings.**

When community partners had difficulty coordinating with after-school groups, they turned instead to school groups. The flexibility to collaborate with informal and formal educational organizations increases the potential reach of the project.

### □ **Present a realistic timeline for outreach partners regarding product distribution.**

Because community partners planned around the arrival of materials, frustration was expressed when the timing changed. It would be beneficial to provide participants with as realistic a timeline as possible to minimize frustration.

### □ **Be aware of and prepare for the supply and demand for products.**

Members of the broader public who ordered products noted the delay in receipt but remained interested in receiving them. This interest is important to maintain. In future projects, if demand is higher than supply, it would be useful to notify those who ordered a product that it will be delayed. Keep them informed while they wait.

### □ **Allow for follow-up evaluation.**

Since many partners described plans to continue *Building Big* activities, future outreach projects should consider allotting some funding for follow-up with key members of the partnering organizations. It would be useful to assess the portion that does continue and partners would benefit from sharing plans with one another.