

GOODMAN RESEARCH GROUP, INC.
Program Evaluation • Consultation • Market Research

Final Evaluation Report

Community Ambassadors in Science Exploration (CASE)

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SUBMITTED TO

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EXECUTIVE SUMMARY

Community Ambassadors in Science Exploration (CASE) was a five-year collaboration between four science museums and eight community-based organizations (CBOs). The broad aim of the program was to train a corps of teen and adult peer presenters (Ambassadors) who then led science workshops for underserved families in their communities using curricula developed by the museums. The four museums included the Franklin Institute, the Philadelphia Zoo, The Academy of Natural Sciences, and the New Jersey Academy for Aquatic Sciences (formerly the New Jersey State Aquarium). These institutions have a long history of museum-community collaboration through the Philadelphia/Camden Informal Science Education Collaborative (PISEC).

Goodman Research Group, Inc. (GRG) served as the external evaluator of the program throughout its five years, collecting data from families, Ambassadors, and CBO and museum staff via surveys, telephone interviews, focus groups, and observations.

KEY FINDINGS

The CASE program served communities that are underrepresented in current museum audiences.

- CASE served both females and males from underrepresented minority groups, primarily African American, Latino, and Asian. The most frequent participants were younger than 20 years-old and African American.

CASE succeeded in making informal science learning accessible in participating communities.

- CASE served a total of 10,971 individuals between September 2004 and December 2008.
- Across the five years, families in the eight participating sites had a grand total of 358 opportunities to attend science workshops presented by trained teens and adults from the same communities.
- Families also had 27 occasions to visit the four participating museums. Through workshops and special events, the program enabled families to overcome barriers that would otherwise have limited their ability to attend the museums (i.e., time conflicts, cost, large family size, lack of knowledge about science).

CASE increased families' science interest, understanding, and engagement.

- Across the five years, CASE featured 38 different science workshop topics. The science topics and the accompanying hands-on activities were very appealing and engaging to families. In addition, nearly all workshop participants learned new information in the workshops.

- The program trained the equivalent of 142 teen and adult workshop presenters or Ambassadors whom families found prepared, knowledgeable, and engaging.
- More than half of the families who participated in the workshops were interested in doing workshop activities at home with their children.

CASE was effective in increasing Ambassadors’ interest in science, in teaching science, and in building their skills for future employment. The program also was somewhat effective in increasing Ambassadors’ interest in science careers.

- In each of the last three years of the program, a large majority of Ambassadors had increased interest in science (ranging from 76% to 92%) and in teaching science (ranging from 76% to 88%). Some (50%-62%) had increased interest in a career in science (not surprising since many of the ambassadors were working adults).
- CASE was also responsible for increases in Ambassadors’ involvement in science outside of the program. As a result of participating in CASE, a majority of Ambassadors discussed science-related issues with others, visited a science museum, and tried to find out more about science topics and careers.
- In addition to increasing their interest in science, CASE also provided Ambassadors with opportunities to learn about developing working relationships, with managers/supervisors (i.e., the museum partners and the CBO site contacts) as well as with peers (i.e., other Ambassadors). The program also gave Ambassadors experienced in logistical, financial, and relational problem solving.
- Finally, Ambassadors were quite interested in future CASE-related leadership activities, such as training new Ambassadors and helping museums plan and host family events.

LESSONS LEARNED

Our annual evaluation reports offered specific recommendations for improving program process and outcomes for the following years. Given that the CASE program is drawing to a close, we offer the following broad lessons learned in consideration of any future iterations or replications of the program.

- From the beginning, develop strategies to promote and insure the sustained involvement of families in informal science education programs. Develop the identity of programs separate from the identity of the community-based organizations in which they are held (i.e., “brand” the program). Offer opportunities for program activities to extend into the home.
- Develop clear and easily communicated messages for families about the unique value and benefits of program participation.

- Hands-on experiences are an extremely popular feature of informal science education programs. It is important that hands-on experiences be incorporated into larger events as well as smaller workshops.
- Clearly impress upon informal science education program staff and volunteers the extent of the commitment they are making and consider ways to streamline their training and scheduling of program activities. Among other things, this will increase retention of staff.
- For collaborative initiatives, create as explicit as possible links between the collaborating organizations, in order to increase effectiveness in meeting goals.

In summary, the CASE program can serve as a model for other informal science education initiatives that feature programmatic efforts to increase underrepresented groups' engagement in science, training teens and adults in the community to lead workshops, and collaborative efforts among science museums and CBOs.

INTRODUCTION

In 2004, Goodman Research Group, Inc. (GRG) began an evaluation of the five-year NSF-funded Community Ambassadors in Science Exploration (CASE) program. For each of the first three years of the project, GRG submitted an annual report of our evaluation activities. This report presents the methods and findings from across the five years of evaluation (2004-2008).

CASE was led by four science museums with a long history of museum-community collaboration through PISEC (Philadelphia/Camden Informal Science Education Collaborative). The Museum Partners included the Franklin Institute, the Philadelphia Zoo, The Academy of Natural Sciences, and the New Jersey Academy for Aquatic Sciences (formerly the New Jersey State Aquarium).

For the CASE program, the science museums collaborated with eight community-based organizations (CBOs) to train a corps of teen and adult peer presenters (Ambassadors) who then led science workshops for underserved families using curricula developed by the museums. The stated goals of the CASE program were to:

- Make science accessible by bringing science activities into community settings;
- Promote the use of science museums and their programs by communities that are underrepresented in current museum audiences to develop a more diverse future audience;
- Increase science interest, understanding, and engagement by involving underserved families in science inquiry workshops;
- Increase awareness of careers in science, technology, engineering and math (STEM); and
- Build community capacity and provide skills for future employment by training peer presenters.

The participating CBOs were the African Episcopal Church of St. Thomas, Falomi Club Camp Fire USA, FACTS Charter School, the Imani Education Circle Charter School, Congreso de Latinos Unidos, the Indochinese American Council, Rutgers University's Project LEAP Parents' Academy and Charter School, and the Norris Square Neighborhood Project.

METHODS

The evaluation included quantitative and qualitative data collection from CASE participants, Ambassadors, CBO representatives, and museum partners, as well as observations of CASE workshops, as described in this section of the report.

SURVEYS OF CASE PARTICIPANTS

GRG's evaluation featured two annual surveys of CASE participants: a Family Information Form and an Event Feedback Form. These forms were administered by Ambassadors to all participants at their workshops (not a sample), and the completed forms were sent to the CASE manager, who then forwarded them to GRG.

Family Information Forms (years 2-4)

The Family Information Form (Appendix A) was intended to be administered once to CASE families at the start of their CASE involvement. The form gathered demographic data on participants, information about attendance, and general information about participation in science-related activities.

Event Feedback Forms

Ambassadors, community-based organization representatives, and/or museum partners administered Event Feedback Forms (Appendix B) to participants immediately following each event, including CBO workshops, museum workshops, Career Quests, and other CASE events. The forms explored how participants learned of the events, participants' reasons for attending the events, their feedback about the events and the presenters, and their suggestions for improvement.

AMBASSADOR SURVEY AND FOCUS GROUP

GRG attended each annual graduation ceremony for the CASE ambassadors at the Philadelphia Zoo, and, in years two through four, conducted a written survey of and focus groups with the ambassadors in attendance. (The first year, we relied on individual interviews rather than surveys and focus groups.) The survey (Appendix C) addressed ambassadors' experiences in the CASE program (including training and workshops) and their interest in science. The focus group protocol (Appendix D) focused on similar topics and elicited qualitative information from the ambassadors. Two 45-minute, semi-structured focus groups were conducted each year: one with newer ambassadors and one with more experienced ambassadors.

INTERVIEWS WITH CBO SITE CONTACTS

In summer and early fall 2006, GRG completed interviews with six of the eight CBO site contacts. The interviews assessed their work and interactions with the CASE program over the first two years of the project, as well as their expectations for the final years of the program (see Appendix E). One representative from seven of the eight CBOs was interviewed.

INTERVIEWS WITH MUSEUM PARTNERS

In late 2006 and early 2007, GRG interviewed the key representatives of the four Museum Partners about their experiences with the project. The Museum Partners include the Franklin Institute, the Philadelphia Zoo, The Academy of Natural Sciences, and the New Jersey Academy for Aquatic Sciences (formerly the New Jersey State Aquarium). The Museum Partners responded to general questions about their responsibilities on the project and the highlights and challenges of the project, questions about the participating community-based organizations (CBOs) and Ambassadors, and questions about the future of the project (see Appendix F).

WORKSHOP OBSERVATIONS

Each year, GRG observed a small sample of workshops at different community-based organizations. The workshop observation protocol is attached in Appendix G.

REFLECTIVE SESSION OBSERVATION

A new feature of the program in its last year was that Ambassadors had an opportunity to observe others' workshops and then meet to reflect on lessons learned. GRG staff made one trip to Philadelphia in spring 2008 to observe, document, and describe the sessions, gather feedback on its appeal, and assess the ways in which the session contributed to peer presenters' learning and skill acquisition (see Appendix H).

Table 1 provides an overview of the evaluation activities across the five years. Altogether, the evaluation is based on data from 2,373 family surveys, 44 Ambassador surveys, 16 workshop observations, and feedback from nearly all of the 12 participating CBOs and Museum Partners.

Table 1
Overview of CASE Evaluation Methods by Year

	Year 1	Year 2	Year 3	Year 4	Total
Family Information Form		N=732	N=683	N=199	N=1,614
Event Feedback Forms	N=411	N=951	N=667	N=344	N=2,373
Family Focus Group			N=7		N=7
Ambassador Survey and Focus Group	N=14	N=17	N=13	N=17	N=61
CBO Interview			N=6		N=6
Museum Partner Interview			N=4		N=4
Workshop Observations	7 observations	6 observations	3 observations		16 observations
Reflective Session Observation				1 observation	1 observation

RESULTS

CASE evaluation methods were designed to assess the program’s effectiveness in meeting its goals. The results are presented by program goal, describing evidence of the program’s success from the multiple data sources.

GOALS 1 AND 2: MAKE SCIENCE AND SCIENCE MUSEUMS ACCESSIBLE TO UNDERREPRESENTED COMMUNITIES

CASE met its goal of making science accessible in participating communities. The program gave families a chance to do science and it provided them with opportunities to attend museum events by removing commonplace barriers.

The PISEC partners recognized that for some families, personal, cultural, and/or language barriers stand in the way of engagement in informal science learning. The CASE program activities were designed to provide these families with access to ongoing science experiences. Specifically, the program featured science Ambassadors. These teens and adults were drawn from the participating community-based organizations and received in-depth training to present science workshops to families in their communities.

4 museums

8 communities

142 ambassadors

385 CASE events!

Across the five years of the program, CASE involved a total of nine community-based organizations and the equivalent of 142 Ambassadors.¹ Two CBOs withdrew after the program's first year and were replaced by other organizations that were involved for the remaining years. All the other CBOs were retained for the full duration of the program. Through the CBOs and Ambassadors, the program presented 358 science workshops in their community settings.

The four museum partners presented 27 events, as shown in Table 2. In addition to these events, which drew CASE families to the museums, CASE families also received free admission to partner museums. In our focus group with highly active CASE families, participants noted that CASE enables families to overcome the common barriers that would limit their ability to attend museums (e.g., time conflicts, cost, large family size, lack of knowledge about science).

Table 2
Number of CASE Program Events by Year

Program Year	CBO Workshop	Museum Workshop	Career Event	Special Event	Other	Total
One	85	4	1	--	--	90
Two	98	8	2	5	--	113
Three	106	3	1	--	--	110
Four	67	--	--	2	1	70
Other	2	--	--	3	--	2
Total	358	15	4	10	1	388

Beyond serving large numbers of families, those served believed the program was effective in bringing science activities into community settings and promoting the use of science museums. A sample of results from the five years of evaluation is offered here:

From the family focus group:

- 7 out of 7 family focus group participants *strongly agreed* that “CASE gives my family a chance to do science.”
- 7 out of 7 agreed that CASE was *very* or *extremely* successful in providing special opportunities for families to attend museum events.
- 5 out of 7 said CASE was *extremely* successful in bringing science to the community.
- 5 out of 7 said their CBOs did an *excellent* job of encouraging families to attend CASE events.

¹ Some Ambassadors underwent multiple unique training sessions so are counted more than once in terms of this program output.

How would you describe the CASE program to a friend?

“Gives families the opportunity to do hands-on science activities in their community with Ambassadors from their community.”



“Hands-on, lots of different things to see, makes science more accessible to the public.”



“Educational opportunities offered at no cost, with a bonus being access to facilities that otherwise couldn’t be afforded.”

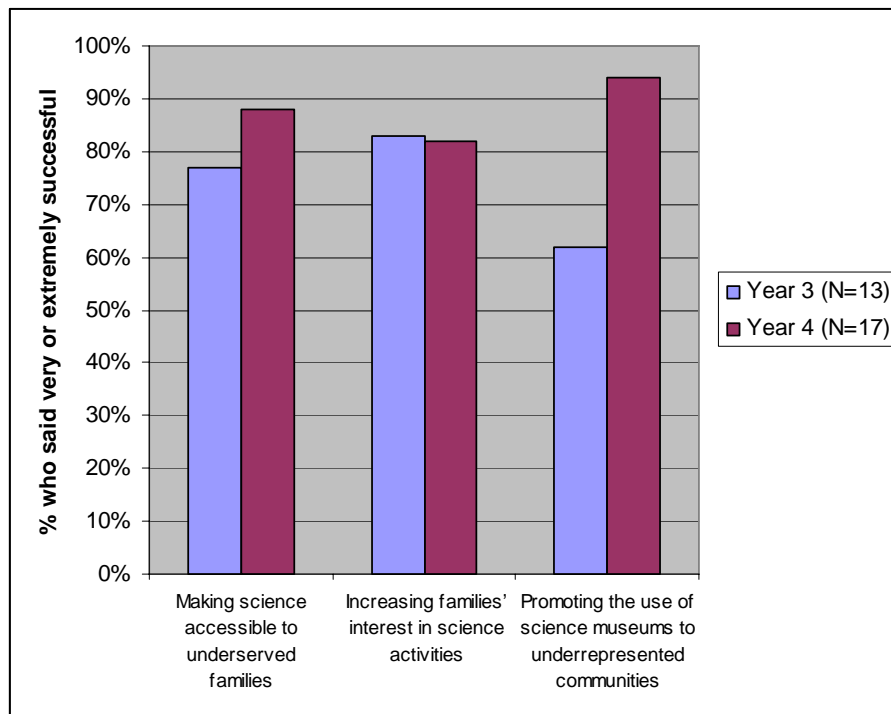


“Free, educational, fun, resourceful program that introduce families to science museums and cultural exhibits. Kids love it.”

From the Ambassador survey and focus group:

The majority of Ambassador survey respondents felt that CASE was successful in making science accessible to underserved families and in promoting the use of science museums and their programs to communities that are currently underrepresented in museum audiences. Moreover, the percentage of Ambassadors who rated the program as highly successful with regard to these goals increased from the third to the fourth year of the program. See Figure 1.

Figure 1
CASE Ambassador Ratings of Program’s Success



Reaching Communities Underrepresented in Museum Audiences

According to CASE program records, a total of 10,971 individuals participated in the program over time. Of the individuals who participated in the program, 96% of them attended one CASE event and 4% attended two or more CASE events.

Table 3 presents demographic information on CASE families. These results were drawn from the CASE program’s database. The profile demonstrates that CASE served both females and males from underrepresented minority groups, and from a broad range of ages. The most frequent participants were younger than 20 years-old and African American.

Table 3
 Characteristics of CASE Participants

		Percentage
Gender	Female	56%
	Male	37%
	Unknown	7%
Ethnicity *family	African American	33%
	Latino	11%
	Asian/Pacific Islander	9%
	Caucasian	2%
	Native American	<1%
	Other	3%
	Unknown	41%
Age	Under 20	56%
	20's	10%
	30's	12%
	40's	7%
	50 and over	4%
	Unknown	10%

GOAL 3: INCREASE SCIENCE INTEREST, UNDERSTANDING, AND ENGAGEMENT

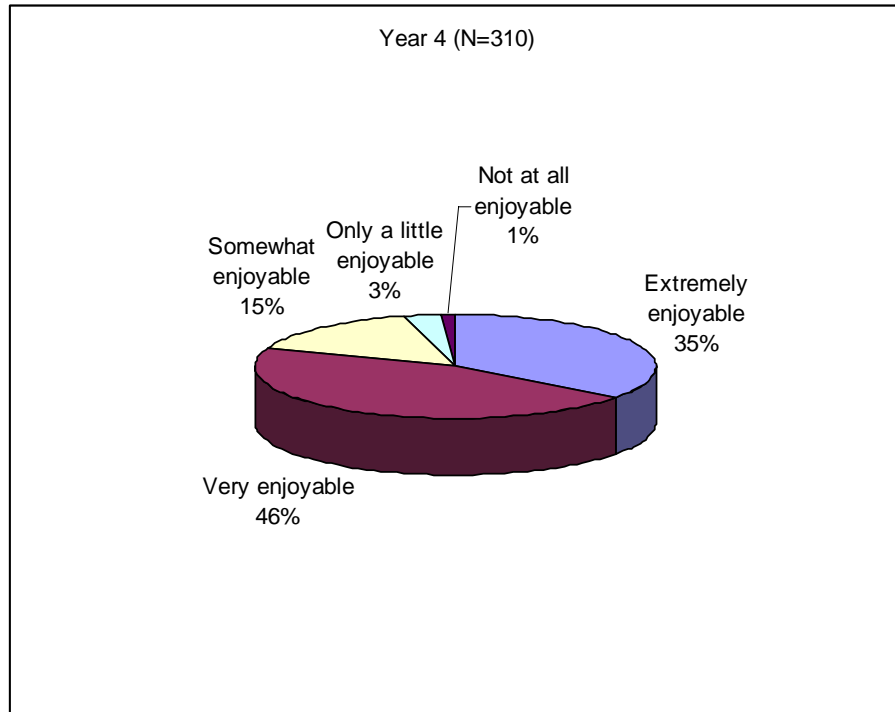
CASE achieved its goal of increasing families' science interest, understanding, and engagement. Families enjoyed CASE events and considered them high quality. They also were inspired by CASE workshops to continue their informal science learning at home.

The results of feedback forms completed after CASE events confirmed that participants were engaged in the science workshops; over 80% gave the two highest ratings. Figure 2 shows participants' average enjoyment ratings for Year 4 workshops; results were similar across years.

Figure 2
Participants' Enjoyment of CASE Events

“Fun, educational, and exciting. I would come back because it’s always good to do things as a family and learn together as a family.”

- CASE Parent

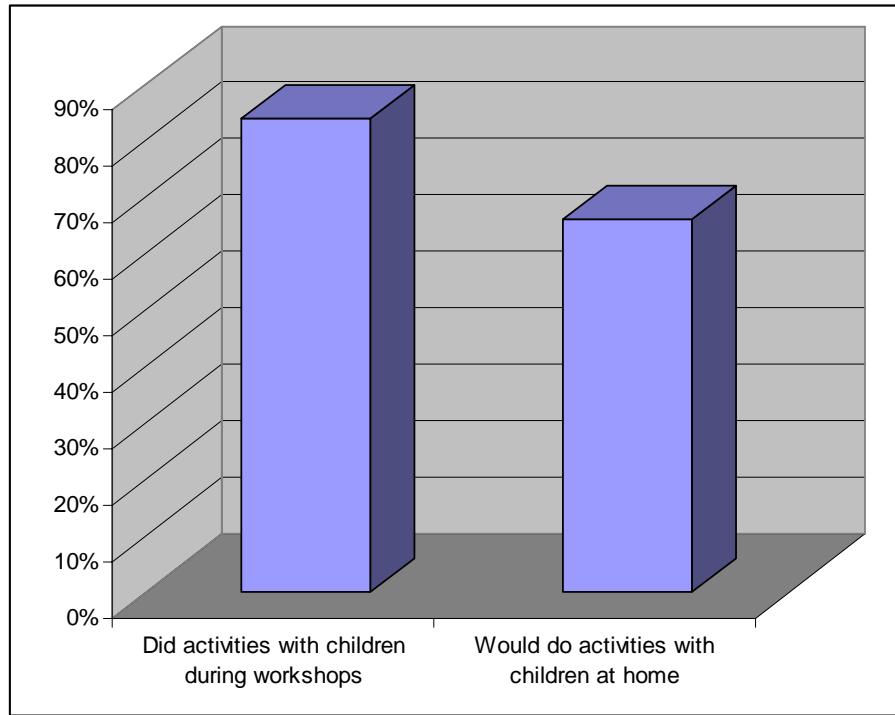


In the third year focus group with active CASE parents, they reported feeling that their children were more excited to learn science as a result of the program. They also believed their children would be more interested in and attentive to science in school after being exposed to the subject through CASE. As one parent explained, *“It makes kids and parents more active in learning/pursuing science.”*

Two-thirds of parents planned to use CASE activities at home with their children.

Not only did the CASE program encourage family participation in science during CASE workshops, it also encouraged family members to learn from one another and participate in science activities after CASE events were over. As one parent explained, *“You can start a project at a workshop and later finish the project at home.”* As shown in Figure 3, the majority of respondents completing workshop feedback forms indicated they had worked on activities together with their children during CASE workshops. In addition to doing activities together during CASE workshops, many families indicated they would do the workshop activities at home with their children.

Figure 3
Family Engagement with Science During and After CASE Workshops



The CASE Ambassadors likewise confirmed families’ engagement. In Year 1, ambassador interviewees felt that the workshops were fun and family-oriented. The following are examples of Year 1 interview responses about the strengths of CASE workshops:

“They like the hands-on activities and crafts and they learn that science is fun.”

“You can see the families grow together. There is lots of interaction between parents and children at our workshops.”

“They take away a better understanding and awareness of the topic we’re presenting to them.”

CASE Ambassadors found their child and adult workshop participants highly interested in the science workshops.

Ambassadors from Years 2-4 were surveyed about their child and adult interest in the CASE workshops (see Figures 4 and 5). The perceived level of interest was high for both children and adults across all three years, though children were perceived to be more interested than their adult caregivers. Ambassadors perceived child interest as particularly high, with over 80% of children rated as *very* or *extremely* interested in the workshops during Years 2, 3, and 4. Adults were also perceived to be interested in the CASE program as demonstrated by the fact that no negative ratings were given in response to the question.

Figure 4
Ambassadors' Perceptions of Children's Interest in CASE Workshops

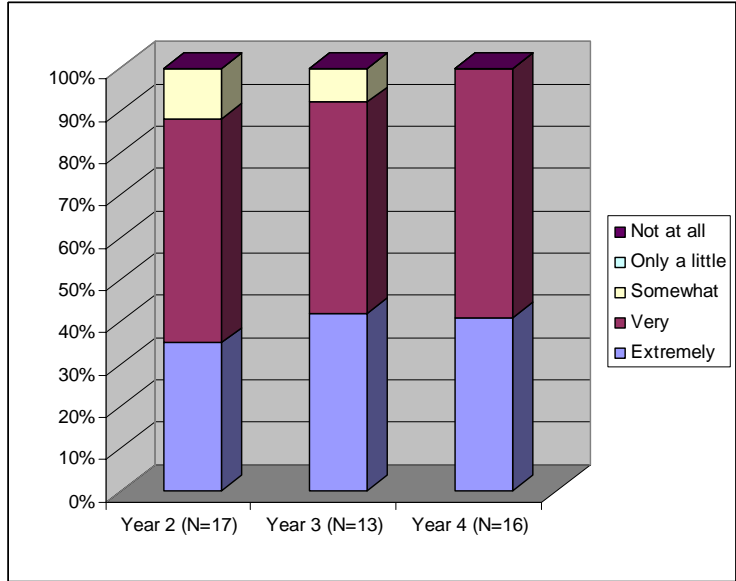
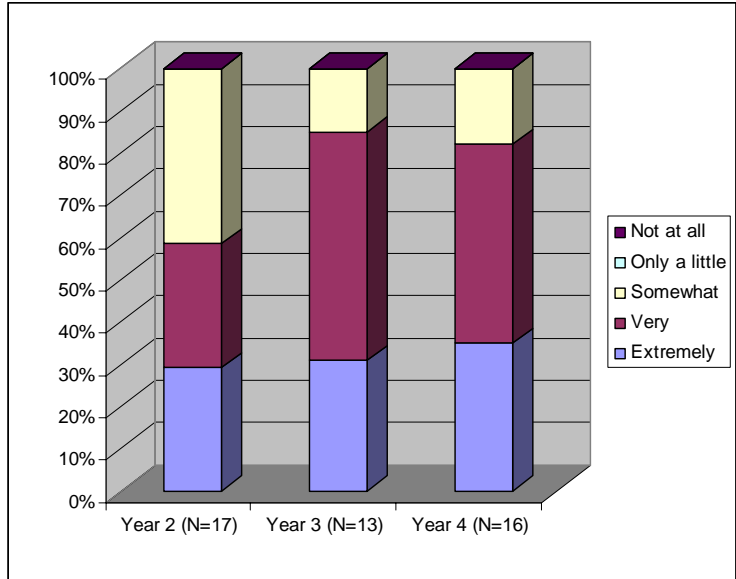


Figure 5
Ambassadors' Perceptions of Adults' Interest in CASE Workshops



Evidence of CASE Workshop Quality

The community-based science workshops presented by Ambassadors are the vehicle through which the program seeks to increase families’ science interest. Across all four years of the program, the majority of CASE families rated the workshops highly. As one participant put it, “*Anybody can talk to you, but when you interact it makes it exciting.*”

Both participants and Ambassadors gave high marks to CASE workshop topics and materials.

The vast majority of workshop participants rated the quality of CASE events positively, as presented in Table 4 with ratings from the last two years. They were positive about the science topics, the hands-on activities, and the presenters, as well as overall.

Table 4
Participants’ Ratings of CASE Events

Percentage of those who said “very good” or “excellent”	Year 3	Year 4
Science topic	73%	63%
Hands-on activities	77%	66%
Presenter	75%	65%
Workshop overall	79%	68%

NOTE: Year 3 N ranged from 443-532. Year 4 N ranged from 317-320.

Active CASE families rated Ambassadors’ preparation, knowledge, presentation, and interactions with families between nine and ten on a ten-point scale.

Various data collection activities gathered feedback on the Ambassadors. There was an extremely high degree of satisfaction among workshop participants with the Ambassadors’ presentations. For instance, active CASE families rated Ambassadors’ level of preparation, knowledge of topics, clarity of presentations, level of engagement when presenting, and interactions with families between nine and ten (on average) on a ten-point scale.

In general, ambassadors also had positive reactions to the different components of CASE, as Table 5 demonstrates for ambassadors from Years 3 and 4.

Table 5
Ambassadors’ Perceived Quality of CASE Program Components

Percentage of Ambassadors who said “very good” or “excellent”	Year 3 (N=13)	Year 4 (N=16)
The workshop topics	85%	88%
The curriculum materials	77%	94%
CASE Ambassador training (in yr 4 only)	N/A	77%
Your relationships with the museum partners	84%	82%
Your relationships with the other Ambassadors	76%	71%
Your own organization’s support for you as a CASE Ambassador	92%	88%

Families' Most and Least Favorite Aspects of the Workshops

CASE families were asked what they liked best, and what they liked least, about the CASE workshops. The following components were praised most often:

The family-friendly science topics – including catchy titles such as Beach Detectives and Mummy Madness – were what made the workshops most appealing to families.

- Science topics (Years 1, 3, and 4)
- Hands-on learning (Years 1 and 3)
- Family involvement (Years 2 and 4)
- Ambassador presentations (Years 3 and 4)
- Science materials (Year 3)
- Aspects that were specific to particular workshops (all 4 years)

Most respondents said that there was nothing that they disliked about the program. In Year 1, 25% of CBO workshop respondents listed some concerns, such as wanting workshop leaders to speak louder and discuss more scientific facts, and wanting more hands-on experiences.

Participants' Suggestions for the CASE Program

Although most of the CASE participants had no complaints or criticisms about the program, some participants suggested ways to improve the program, as listed in Table 6. The transitional nature of the suggestions only serves to highlight the accomplishments of the CASE project team over the years; initial suggestions tended to center around programmatic components, whereas subsequent suggestions were more focused on expansion and community involvement.

Table 6
Participant Suggestions for Program Improvement Across Years

After Year 1

- Increase the number of hands-on activities and materials
- Consider incorporating video into workshops
- More time for workshops
- Better Space, better food
- Additional adult supervision
- Create fieldtrips

After Year 2

- Avoid scheduling conflicts (e.g., two events at the same time)
- Decrease the number of participants at each workshop
- Eliminate the attendance sign-up requirement
- Create more social opportunities for parents
- Create smaller workshop activity groups

After Year 3

- Expand the program to include more museums in Philadelphia and in New Jersey
- Collaborate with museums across the nation
- Try to schedule more workshops on weekends
- Encourage community-building so different CASE families become well-acquainted with each other
- CASE and CBOs could share the responsibility for community-building

After Year 4

- Encourage greater parent participation
- Ask parents to control their children's' behavior
- Hold workshops on Saturdays
- Allow more time for workshops
- Create field trips

GOAL 4: INCREASE AWARENESS OF SCIENCE CAREERS

CASE increased Ambassadors' interest in science and in teaching science. The program was somewhat effective in increasing presenters' interest in science careers.

Ambassadors' Interest in Science

Across Years 2, 3, and 4 of the program, a large majority of ambassadors indicated that their interest in science had increased (see Table 7). In Year 3 in particular, 92% of ambassadors believed that their interest in science had *increased "a little" or "a lot"* since joining the program. Throughout the program, none of the ambassadors indicated a decreased interest in learning about science.

On average, eight in ten ambassadors became more interested in science and in teaching science, while five in ten grew more interested in a career in science.

Table 7
Ambassadors' Interest in Science Since Joining CASE

Ambassadors who said their interest had:	Year 2 (N=17)	Year 3 (N=13)	Year 4 (N=16)
increased "a little" or "a lot" since becoming ambassadors	82%	92%	76%
"stayed the same" since becoming ambassadors	18%	8%	24%
decreased "a little or "a lot" since becoming ambassadors	0%	0%	0%

Furthermore, ambassador interest in teaching science also increased after involvement with CASE (see Table 8). In Years 2-3, nearly 90% of ambassadors said that their interest in science had increased, though this number declined slightly in Year 4.

Table 8
Ambassadors' Interest in Teaching Science

Ambassadors who said their interest had:	Year 2 (N=17)	Year 3 (N=13)	Year 4 (N=16)
increased "a little" or "a lot" since becoming ambassadors	88%	88%	76%
"stayed the same" since becoming ambassadors	12%	12%	24%
decreased "a little or "a lot" since becoming ambassadors	0%	0%	0%

In all three years, half or more of Ambassadors said their interest in science careers had increased (see Table 9).

Table 9
Ambassadors' Interest in a Career in Science

Ambassadors who said their interest had:	Year 2 (N=17)	Year 3 (N=13)	Year 4 (N=16)
increased "a little" or "a lot" since becoming ambassadors	53%	62%	50%
"stayed the same" since becoming ambassadors	47%	38%	50%
decreased "a little or "a lot" since becoming ambassadors	0%	0%	0%

Impact of CASE on Ambassadors' Everyday Life

In Year 4, ambassadors reported a sharp increase in their science-related interactions outside of the CASE program. As Table 10 shows, nearly all of the ambassadors indicated that they had discussed science with others, visited a science museum, and learned more about science topics. Most of them had also looked for information about science-related jobs.

CASE motivated Ambassadors to engage in science by discussing it with others, visiting science museums, and researching science topics.

Table 10
Year 4 Ambassadors' Science-Related Interaction Outside of CASE

	Yes	No	No, but want to
Discussed science-related issues with your friends, family, or colleagues	94%	6%	0%
Visited a science museum (not as part of the CASE program)	88%	6%	6%
Tried to find out more about a particular science-related topic	82%	6%	12%
Tried to find out more about science-related jobs or careers	65%	29%	6%

N=17 (Year 4 Only)

Impact of CASE on Ambassadors' Future Interests

Table 11 shows that, at the end of the program, many Ambassadors were interested in future CASE-related leadership activities. They were particularly interested in *helping museums plan workshops and family events*. The positive influence of CASE is evident in the fact that no ambassadors responded negatively to this set of questions.

Current Ambassadors were very interested in mentoring new workshop facilitators and in lending a hand to museums' work with families.

Table 11
Year 4 Ambassadors' Interest in Future Opportunities

	Not at all Interested	A little interested	Somewhat Interested	Very interested	Extremely interested
Training new Ambassadors on how to conduct workshops	0%	6%	29%	24%	41%
Conducting workshops with new Ambassadors	0%	6%	24%	41%	29%
Helping museums plan workshops and family events	0%	0%	18%	41%	41%
Helping host events at museum sites	0%	6%	29%	24%	41%

N=17 (Year 4 Only)

GOAL 5: BUILD COMMUNITY CAPACITY AND PROVIDE SKILLS FOR FUTURE EMPLOYMENT

Ambassadors' satisfaction with the program underscores the ways in which CASE built both community capacity and individual capacity for science workshop presentation and for collaborative work. CASE's responsiveness to feedback from its Ambassadors supported the program in accomplishing these goals.

Ambassadors' Overall Opinions about the CASE Experience

Throughout all four years of CASE, ambassadors indicated a high level of satisfaction with the program. In the first year, the ambassadors were interviewed; in the following years, this feedback was collected through surveys. Table 12 shows ambassador levels of satisfaction during Years 2, 3, and 4 of CASE.

Table 12
Satisfaction with CASE Ambassador Experiences

	Not at all satisfied	Only a little satisfied	Somewhat satisfied	Very satisfied	Extremely satisfied
Year 2 (N=16)	0%	0%	6%	69%	25%
Year 3 (N=13)	0%	0%	0%	46%	54%
Year 4 (N=16)	0%	0%	13%	38%	50%

In addition to feeling satisfied with their involvement in the program, ambassadors also had a strong interest in learning and teaching others, as illustrated in their own words:

“After putting all the hard work into training and learning the materials, when you get to interact with families, realizing the message to them and seeing their reaction, how they’re learning, they’re hungry for more.”
(Year 1 Ambassador)

“When all is said and done, it’s a bunch of fun.” (Year 1 Ambassador)

“I can make connections to the science-based topics that I am taught in school.” (Year 2 Ambassador)

“I want to be an electrical engineer. I figured that if I added an additional science curriculum into my knowledge maybe it will give me a taste of what science actually is.” (Year 2 Ambassador)

“It was fun to teach kids the materials that they wouldn’t learn in school and see them excited about it.” (Year 3 Ambassador)

“People ask, “When is the next one?”; their enthusiasm makes you want to continue as an Ambassador.” (Year 3 Ambassador)

“Families see science as fun and want to do it at home.” (Year 4 Ambassador)

“Science is an ongoing process that is pervasive throughout everyday life.” (Year 4 Ambassador)

Ambassadors’ Challenges and CASE Solutions

While the program often received high ratings in terms of ambassador satisfaction and perceived benefits to participating families, ambassadors noted some common challenges with CASE. These challenges included:

- **Trainings (8 hours, 2 days per month) were too time-consuming.** Six ambassadors mentioned this challenge in Year 1, and some ambassadors expressed the same sentiment in Year 4.
- Some Year 1 ambassadors felt that there was **not enough funding** for them to accomplish everything that they wanted to do.
- New ambassadors in Year 2 experienced **low workshop attendance rates**. Sometimes, they held workshops and no participants showed up.
- In Years 2 and 3, **language barriers** caused some difficulty. When ambassadors had to translate between different languages, this took away from the time that would have been spent completing more of the workshop activities.
- Ambassadors had to **manage the children’s behavior while also keeping parents involved**. Difficulty with parental involvement was distinctly noted in Years 2 and 4, despite the fact that perceptions of adult interest in CASE were rated highly during those years.
- There were some **concerns about monetary compensation** in Years 2 and 3. In Year 2, second-year ambassadors felt that the compensation was too low, although first-year ambassadors listed their compensation as a positive aspect of the program.
- In Year 3, many ambassadors indicated that **they did not receive their paychecks in a timely manner**, and that they would prefer greater consistency.

- In Year 4, ambassadors felt that many of their challenges stemmed from the fact that there were **too few ambassadors** available to conduct all workshops that had been planned, and that **the number of involved CBOs should be expanded**.

Earlier reports indicated these challenges, and ambassadors noted that CASE staff members took steps to ameliorate many of the problems. In the first year, several ambassadors noted that staff members were accessible and responsive, and that *“the materials and information they give is good. They break it down so we can explain it to little kids...”* In Year 3, ambassadors mentioned that the museums had worked with them to address some of their earlier concerns about the program. For instance, the training became more streamlined, the new materials kits were easier to use, and the ambassadors were given the opportunity to learn from each other by observing workshops. Also, CASE implemented a new “bonus pay incentive system” for ambassadors who remained in the program for more than one year.

Ambassadors’ Suggestions for the Future

Ambassadors gave different types of suggestions and advice depending on the program year. Initially, advice was geared toward helping future ambassadors who might become involved with the program. In later years, feedback tended to focus on logistics and programmatic expansion. Ambassadors provided the following suggestions:

- Year 1 ambassadors suggested that future ambassadors **remain open-minded and patient**, and recommended planning out work schedules in advance.
- After the second year, ambassadors suggested that the museum partners should **offer internships** to experienced ambassadors, and **establish a scholarship fund** for young ambassadors who wished to pursue science degrees. Also, they hoped that the program would ultimately **expand to include more community sites**.
- At the end of Year 3, ambassadors suggested **increasing the availability of the museum passes**, because some parents had large families, and the museums were not easily accessible without the passes. In general, the ambassadors thought that the **museums should be better advertised**. Also, Year 3 ambassadors liked the idea of including **more workshop topics that were related to everyday life**, such as environmental or healthcare topics. Lastly, ambassadors thought that parents should receive some sort of an **incentive** for their continued participation in the program.

- Year 4 ambassadors felt that CASE should maintain a **“network” of substitute ambassadors** who would be able to help out if necessary. They also suggested holding two training sessions instead of three, and potentially creating a **training video**. In addition, ambassadors proposed the creation of **social events** in order to engage the parents and give them a sense of investment in the program. Ambassadors also suggested creating an **online blog** so that current ambassadors could share ideas. Lastly, they stressed that this type of program should continue to implement teaching aimed at **different types of learning**.

CONCLUSIONS AND RECOMMENDATIONS

The evidence from the final year of evaluation confirms that CASE was effective in meeting its goals for the families and individuals who participated in the program. While hundreds of individuals participated in CASE over time, there were many who attend only one CASE event, suggesting that there are opportunities to expand the program in the future. Feedback from involved CASE families also pointed favorably to expansion, with families wishing that more science museums locally and nationally could be added to the CASE family. This section of the report presents our conclusions with respect to the project goals and recommendations for future iterations or replications of the program.

CASE made science accessible by bringing science activities into community settings and promoted the use of science museums by underrepresented communities.

CASE successfully reached its intended audience, in that it served both females and males from underrepresented minority groups, primarily African American, Latino, and Asian. The program made informal science learning accessible in participating communities and provided families with opportunities to attend museum events by removing personal, cultural, and/or language barriers. This was accomplished through the sustained involvement of eight community-based organizations in the project, through the training of 70 community science Ambassadors, and through effectively designed workshops.

In its five years, CASE offered approximately 388 events covering 44 different family-friendly science topics ranging from Bats to Bubbles. Many of the workshops provided participants with unique opportunities to explore topics that were otherwise not accessible in their urban neighborhoods. Free admission to partner museums was also a key benefit for all CASE participants – ambassadors and families alike.

CASE increased science interest, understanding, and engagement by involving underserved families in science inquiry workshops.

CASE involved more than ten thousand individuals in science inquiry workshops that took place in community and museum settings. The majority of participants attended one CASE event, but there were more than 500 participants who attended multiple events. CASE workshops drew participants who wanted to learn about science and the workshops were fun, interesting, and educational. Participants' interest in the workshops remained high over time.

The workshop topics, the program's focus on hands-on learning, and the opportunity for families to spend time together were most appealing to participants. The CASE workshop activities were so appealing that some families did them at home with their children. These active families saw CASE contributing to their children's science learning in school.

CASE built community capacity and provided skills for future employment by training peer presenters and increased presenters' interest in science.

CASE Ambassadors benefited personally and professionally from their experience. CASE effectively prepared their Ambassadors not only to lead workshops but to develop a foundation of workplace skills. CASE provided Ambassadors with opportunities to learn about developing working relationships, with managers/supervisors (i.e., the museum partners and the CBO site contacts) as well as with peers (i.e., other Ambassadors). The opportunity to observe one another's workshops was a particularly positive and beneficial experience for those involved. The program also gave Ambassadors experienced in logistical, financial, and relational problem solving. Ambassadors enjoyed their experiences and valued the opportunity to learn and give back to their communities.

It was particularly noteworthy that the vast majority of ambassadors reported being more interested in science and in teaching others about science as a result of their CASE experience. Ambassadors also were interested in future opportunities to pursue informal and formal science education and career objectives.

Recommendations

The following recommendations are culled from our annual evaluation reports and presented as lessons learned for other similar informal science education initiatives.

- From the beginning, develop strategies to promote and insure the sustained involvement of families in informal science education programs. Develop the identity of programs separate from the identity of the community-based organizations in which they are held (i.e., “brand” the program). Offer opportunities for program activities to extend into the home.
- Develop clear and easily communicated messages for families about the unique value and benefits of program participation.
- Hands-on experiences are an extremely popular feature of informal science education programs. It is important that hands-on experiences be incorporated into larger events as well as smaller workshops.
- Clearly impress upon informal science education program staff and volunteers the extent of the commitment they are making and consider ways to streamline their training and scheduling of program activities. Among other things, this will increase retention of staff.
- For collaborative initiatives, create as explicit as possible links between the collaborating organizations, in order to increase effectiveness in meeting goals.

In summary, the CASE program can serve as a model for other informal science education projects seeking to promote museum-community collaborations, establish peer training programs, develop family science activities, and increase the diversity of museum going audiences.

APPENDICES

- Appendix A: Family Information Form
- Appendix B: Event Feedback Form
- Appendix C: Ambassador Survey
- Appendix D: Ambassador Focus Group Protocol
- Appendix E: CBO Interview Protocol
- Appendix F: Museum Partner Interview Protocol
- Appendix G: Workshop Observation Protocol
- Appendix H: Reflective Session Observation Protocol

**Community Ambassadors in Science Exploration (CASE)
Family Information Form
2008 CASE workshops**

Please take a moment to tell us about your family. This information will help us know more about who is participating in the program.

1. Please check (✓) your community organization affiliation. (Check one.)

- | | |
|--|---|
| <input type="checkbox"/> Congreso | <input type="checkbox"/> Indo-Chinese American Council |
| <input type="checkbox"/> Falomi Club/Camp Fire USA | <input type="checkbox"/> LEAP Academy Charter School |
| <input type="checkbox"/> FACT Charter School | <input type="checkbox"/> Norris Square Neighborhood Project |
| <input type="checkbox"/> Imani Education Circle Charter School | <input type="checkbox"/> St. Thomas Church |

2. Why did your family come to this workshop? (Check all that apply.)

- | | |
|---|--|
| <input type="checkbox"/> We wanted to learn about science. | <input type="checkbox"/> We came here to have fun. |
| <input type="checkbox"/> We wanted to do something as a family. | <input type="checkbox"/> Part of home schooling a child. |
| <input type="checkbox"/> Because it is free. | <input type="checkbox"/> To support my child's school. |
| <input type="checkbox"/> Because someone recommended it. | <input type="checkbox"/> It is in my language. |
| <input type="checkbox"/> Because we enjoyed a previous program by PISEC, FEST, or CASE. | |
| <input type="checkbox"/> Other reason; please explain: _____ | |

3. How did you hear about the workshop today (and the CASE program)? (Check all that apply.)

- | | | |
|--|---|---|
| <input type="checkbox"/> Community organization; name: _____ | | |
| <input type="checkbox"/> A phone call | <input type="checkbox"/> Friend or relative | <input type="checkbox"/> Other; please explain: |

4. *Not including* CASE programs, have you been to a science museum, zoo, or aquarium in the last year?

- | | | |
|----------------|------------------------------|-----------------------------|
| Science Museum | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Zoo | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Aquarium | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

5. How often does your family do the following science-related activities?

<i>(Check <u>one</u> box for each activity.)</i>	Never (0)	Rarely (1)	Sometimes (2)	Frequently (3)
Watch a science program on TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attend a science event in our neighborhood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work on science homework or project for school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Talk about or do a science activity as a family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use the internet to look up science-related information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Read about science in newspapers,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TURN THE PAGE →

magazines, or books				
---------------------	--	--	--	--

6. How much do you like each of the following? (Check one box for each.)

Science	<input type="checkbox"/> Not at all	<input type="checkbox"/> A little	<input type="checkbox"/> Some	<input type="checkbox"/> A great deal
Visiting science museums, zoos, and aquariums	<input type="checkbox"/> Not at all	<input type="checkbox"/> A little	<input type="checkbox"/> Some	<input type="checkbox"/> A great deal

7. Have any of the following stopped you from visiting science museums, zoos, or aquariums? (Check all that apply.)

- They are hard to get to.
- They are too expensive.
- I don't have time.
- I/my child(ren) don't find them interesting.
- Other; please explain: _____

8. Please check your three most favorite activities to do with your family in your spare time. (Check only three boxes.)

- Attending sporting events
- Exercising or playing sports
- Shopping
- TV, movies, videos, DVDs
- Arts and Crafts & Hobbies
- Other; please describe: _____
- Art performances, theatre, concerts, dance
- Museums, zoos, aquariums, botanical gardens
- Visiting friends and family
- Church and religious observances
- Parks and picnics

9. What language does your family speak at home most of the time? (Check all that apply.)

- English
- Spanish
- Other; what language? _____

10. Which of the following best describes the race/ethnicity of members of your family? (Check all that apply.)

- American Indian or Alaska Native
- Black or African American
- Native Hawaiian or Other Pacific Islander
- Mixed
- Asian
- Hispanic or Latino
- White
- Other; please describe _____

11. Please verify your home address and whom we should contact about future events:

Full name: _____
 Street Address _____
 City, State, Zip _____
 Home Phone (____)_____ Email:_____

THANK YOU!

Your Name: _____

Your CASE ID # : _____

Today's date: ____/____/____



**Community Ambassadors in Science Exploration (CASE)
Museum Workshop Feedback Form
2008 CASE Museum Workshops**

1. How *enjoyable* was this workshop? Circle one answer.

Not at all Only a little Somewhat Very Extremely

2. What did you like *best* about the workshop?

3. What, if anything, would you like to change about the workshop?

4. Please rate these specific parts of the workshop: Circle one answer for each.

The science topic	Poor	Fair	Good	Very good	Excellent
The hands-on activities	Poor	Fair	Good	Very good	Excellent
The workshop presenter(s)	Poor	Fair	Good	Very good	Excellent
The workshop overall	Poor	Fair	Good	Very good	Excellent

5. How easy or difficult was it to do the activities in today's workshop?

Circle one answer.

Very difficult Somewhat difficult Somewhat easy Very easy

6. Would you think about doing any of the activities from today's workshop at home with your children? Circle one answer. Yes No Maybe

7. How much new information did you learn in the workshop today?

Circle one answer.

None A little bit Some A lot

8. Including yourself, how many people came to the workshop with you today? _____

9. Did you and your child(ren) work together on the activities in the workshop today? Check one answer.

Yes

No

Please list the full name, age, and relationship of the people who are with you today.

Person 1	Name: _____ Relationship to you: _____	Age: _____ Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
Person 2	Name: _____ Relationship to you: _____	Age: _____ Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
Person 3	Name: _____ Relationship to you: _____	Age: _____ Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
Person 4	Name: _____ Relationship to you: _____	Age: _____ Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
Person 5	Name: _____ Relationship to you: _____	Age: _____ Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
Person 6	Name: _____ Relationship to you: _____	Age: _____ Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
Person 7	Name: _____ Relationship to you: _____	Age: _____ Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female

10. Please verify your home address and who we should contact about future events:

Full name: _____
 Street Address: _____
 City, State, Zip: _____
 Home Phone: (____)_____ Email:_____

**THANK YOU!
 PLEASE GIVE THIS FORM TO THE WORKSHOP PRESENTER.**

Survey of CASE Ambassadors

Your Name: _____

1. Overall, how satisfied have you been with your experience as a CASE Ambassador this year? *(Circle one answer.)*

Not at all satisfied Only a little satisfied Somewhat satisfied Very satisfied Extremely satisfied

2. Please rate the following aspects of this year's CASE program:

(Circle one answer for each.)

The workshop topics	Poor	Fair	Good	Very good	Excellent
The curriculum materials	Poor	Fair	Good	Very good	Excellent
Your relationships with the museum partners	Poor	Fair	Good	Very good	Excellent
Your relationships with the other Ambassadors	Poor	Fair	Good	Very good	Excellent
Your own organization's support for you as a CASE Ambassador	Poor	Fair	Good	Very good	Excellent

3. Now, please rate the overall quality of this year's CASE Ambassador trainings in each of the following areas: *(Circle one answer for each.)*

<i>Giving you an idea of the time involved in being an Ambassador</i>	Poor	Fair	Good	Very good	Excellent
<i>Preparing you for how to organize a workshop</i>	Poor	Fair	Good	Very good	Excellent
<i>Providing you with ideas for how to work with family groups</i>	Poor	Fair	Good	Very good	Excellent
<i>Providing you with the skills and knowledge you needed to run the workshops confidently and answer questions</i>	Poor	Fair	Good	Very good	Excellent
<i>Providing you with all the resources you needed to run the workshops</i>	Poor	Fair	Good	Very good	Excellent
<i>Making it clear after the training how to get additional help or have questions and concerns answered</i>	Poor	Fair	Good	Very good	Excellent

4. How many workshops have you done this year? _____

5. In general, how interested in this year's workshops were your child participants?

(Circle one answer.)

Not at all interested Only a little interested Somewhat interested Very interested Extremely Interested

6. How interested were your adult participants? *(Circle one answer.)*

Not at all Interested Only a little interested Somewhat interested Very interested Extremely interested

7. In your opinion, how interested would CASE families be in workshops or programs about their urban environment? *(Circle one answer.)*

Not at all Interested Only a little interested Somewhat interested Very interested Extremely interested

8. How much has your interest in each of the following changed since you became a CASE Ambassador? *(Circle one answer for each.)*

Science	I'm a lot less interested now.	I'm a little less interested now.	My interest is the same.	I'm a little more interested now.	I'm a lot more interested now.
Teaching others about science	I'm a lot less interested now.	I'm a little less interested now.	My interest is the same.	I'm a little more interested now.	I'm a lot more interested now.
A career in science	I'm a lot less interested now.	I'm a little less interested now.	My interest is the same.	I'm a little more interested now.	I'm a lot more interested now.

9. Based on your experience, how successful has the CASE program been in accomplishing each of the following goals? *(Circle one answer.)*

Making science accessible to underserved families	Not at all successful	Only a little successful	Somewhat successful	Very successful	Extremely successful
Increasing families' interest in science-related activities	Not at all successful	Only a little successful	Somewhat successful	Very successful	Extremely successful
Providing Ambassadors with skills for future employment	Not at all successful	Only a little successful	Somewhat successful	Very successful	Extremely successful
Increasing Ambassadors' awareness of careers in science	Not at all successful	Only a little successful	Somewhat successful	Very successful	Extremely successful
Promoting the use of science museums and their programs to communities that are currently underrepresented in museum audiences	Not at all successful	Only a little successful	Somewhat successful	Very successful	Extremely successful

Thank you!

Protocol for CASE Ambassador Focus Groups Held at Graduation June 9, 2007

Colleen Manning, Director of Research, and Lorraine Dean, Research Consultant, of Goodman Research Group, Inc., will each conduct a one hour, semi-structured focus group with CASE Ambassadors at the CASE Graduation being held at the Philadelphia Zoo on June 9, 2007. With Ambassadors' consent, the discussions will be tape-recorded. Name tags will be used to identify participants.

I. Welcome/Overview/Survey

- **GRG Introduction:** *My name is Colleen/Lori. I am with Goodman Research Group, an education research group in Cambridge, Massachusetts. We are the evaluators of the CASE program.*
- **Participant Introduction:** *Could we go around the room/table and have everyone say their name and what organization they're from? I'd also like you to put on a nametag so that I can use your names during our discussion. And, I'm also sending around a sign-in sheet so that I can remember who was here.*
- **Statement of Purpose:** *The purpose of the discussions today is for us to hear about your experiences as CASE Ambassadors. We'll summarize what we hear and share it with the museums, and what you say will be used to help improve the program for future Ambassadors and for CASE families. I want you to know that what you say in this discussion is confidential; we will not use your individual names in our report to the museums.*
- **Request to Tape-record:** *I'd like to tape this discussion so that I can listen to what you say and remember it without taking lots of notes. I'm the only one who would listen to the tape. Does anyone object to taping?*
- **Survey:** *Before we actually start talking, I'd like to ask you to fill out a very quick survey. This is just in case we don't have time to cover everything in our discussion. I'm going to give us 5 minutes for this.*
- **Ground Rules:** *Okay, a few ground rules before we get started. First, in some ways your experiences might be the same, but in other ways they might be different. I want to hear everyone's perspective, so please speak up if your experience is different than someone else's. Also, I want to hear from everyone, so if some people are talking a lot and other people aren't talking much, I might ask you if you have something to say.*

Let's get started!

II. Questions

Questions about CASE Ambassadors' Experiences

- What were the highlights of your last year as a CASE Ambassador?

- What were the challenges?

- For those of you who have been involved for more than a year, how would you compare this year's experience to last year's (or to previous years)?
 - I understand the program made some changes this year based on feedback from Ambassadors. I want to hear your thoughts on those. First, for those of you who qualified, tell me what you think about the bonus pay system.

 - Second, the museums reduced the amount of time required for formal workshop training at the museums. Tell me what you think about how the museums met with you to work out your training schedules.

- Is there anything (more) the museums could do to improve your experience as a CASE Ambassador?

- I understand that two CASE Ambassador groups were able to observe one other and then reflect on the workshops. For those of you who were involved in this, could you tell me about how it went?

- What did you learn from the experience?

- How have you changed as a result of your involvement in the CASE project?

Questions about CASE Workshop Participants

- In your opinion, what are the main benefits of the workshops for participants?

Probe for anecdotal information, specific examples.

- What kinds of activities do families seem to be most interested in?

- What other science-related topics do you think would interest families?

Wrap Up

- So, in summary, what do you see as the best or strongest parts of the CASE program?

- And, finally, what are your thoughts as you look ahead to the final phase of the project? What are you especially excited about? Do you have any concerns?

CBO Site Contact Phone Interview Protocol

General Questions

1. First, I want to find out more about how CASE works at your site.
 - a) Where are your workshops held?
 - b) Who are they for? Who attends?
 - c) How do they find out about it?
 - d) Is CASE connected with any other programs?
2. What are your main responsibilities in the CASE project?
 - a) Have your role and responsibilities changed from year one to year two?
If yes, how?
3. What have been the highlights of your participation in CASE?
4. What have been the main challenges?

Questions about Workshops, Ambassadors, and Families

5. Have you seen the ambassadors from your organization carry out any workshops? If yes:
 - a) How many?
 - b) Which aspects of their facilitation were particularly successful?
 - c) In what areas do they need improvement?
 - d) What are your observations of the influence of the project on ambassadors? How have you seen them change over the year, if at all?
 - e) What are your observations of the influence of the project on families?
6. In your opinion, what are the pros and cons of the family-oriented learning model?
7. Do you have any comments on the activities? From what you've seen or heard, were some activities more successful than others?

8. What are some of the things that your organization can do to improve the success of the workshops in year three?

9. Before CASE, had your organization ever offered science workshops to community members?

Questions about Museum Partners

10. Can you describe the working relationship your organization had with the museums?

- a) What were your interactions with museum partners like?
- b) In what way were the museums most helpful to you?
- c) Is there any kind of assistance or support you would have liked from the museums, but didn't receive?

Wrap Up

11. What are your thoughts as you look ahead to next year? What are you especially excited about? Do you have any concerns? Is there anything you expect to do differently?

12. Next year will be the final year of CASE funding? Do you have any plans to continue family science workshops after that? If so, how will those workshops be funded?

Museum Partners Phone Interview Protocol

General Questions

1. What are your organization's main responsibilities in the CASE project?
 - a) Have your organization's role and responsibilities changed from year one to year two? If yes, how?
2. In your mind, what have been the highlights of Year Two?
3. What have been the main challenges this year?

Questions about CBOs

4. Can you describe the working relationship your organization had with the CBOs? What were your interactions with CBO site contacts and ambassadors like?
 - a) In what areas have sites needed the most support - content, logistical issues, etc.?

Questions about Workshops and Ambassadors

5. Have you seen the ambassadors carry out any workshops? If yes:
 - a) Which aspects of their facilitation were particularly successful?
 - b) In what areas do they need improvement?
 - c) What are your observations of the influence of the project on ambassadors? How have you seen them change over the year, if at all?

Wrap Up

6. What are your thoughts as you look ahead to next year? What are you especially excited about? Do you have any concerns? Is there anything you expect to do differently?

Appendix G

CASE WORKSHOP OBSERVATION PROTOCOL: YEAR 3

Date: _____ Site: _____ Subject: _____

Presenter: _____

Number of families: _____

Observations of family configurations:

Number of adults: _____ # Female: _____ # Male: _____

Number of children: _____ # Female: _____ # Male: _____

Language of presentation: _____

WORKSHOP CONTENT *[IF THERE IS AN AGENDA, COULD FILL IN WITH AGENDA ITEMS]*

Activity Description

Time Allotted to Activity

_____ minutes

_____ minutes

_____ minutes

_____ minutes

_____ minutes

_____ minutes

_____ minutes

_____ minutes

_____ minutes

_____ minutes

Total duration of workshop: _____ hours/minutes

List of CASE materials & resources used:

List of supplemental materials & resources used:

PRESENTER STRATEGIES & AUDIENCE REACTIONS

Was presenter explicit about objective of “families learning together?”	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Did participants appear to be “learning together as families?”	No one <input type="checkbox"/>	A few <input type="checkbox"/>	Some <input type="checkbox"/>	Most <input type="checkbox"/>	All <input type="checkbox"/>
Did the <i>design</i> of the workshop incorporate tasks and interactions consistent with the family-oriented model of learning?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Comments:					

Did presenter focus on hands-on / interactive participant involvement?	None of the time <input type="checkbox"/>	A little <input type="checkbox"/>	Sometimes <input type="checkbox"/>	A lot <input type="checkbox"/>	Throughout <input type="checkbox"/>
Did participants actively engage in hands-on activities?	No one <input type="checkbox"/>	A few <input type="checkbox"/>	Some <input type="checkbox"/>	Most <input type="checkbox"/>	All <input type="checkbox"/>
Comments:					

Did presenter encourage and value audience input (e.g., questions, comments)?	None of the time <input type="checkbox"/>	A little <input type="checkbox"/>	Sometimes <input type="checkbox"/>	A lot <input type="checkbox"/>	Throughout <input type="checkbox"/>
Did audience provide input (e.g., questions, comments)?	No one <input type="checkbox"/>	A few <input type="checkbox"/>	Some <input type="checkbox"/>	Most <input type="checkbox"/>	All <input type="checkbox"/>
Comments:					

How engaged were participants in doing the science activities featured in the workshop?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
How enthusiastic were participants about working together during the workshop?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Comments:					

Did presenter define CASE?	<input type="checkbox"/> Yes <input type="checkbox"/> No				
Did presenter ask about or mention CASE families?	<input type="checkbox"/> Yes <input type="checkbox"/> No				
Did participants indicate knowing what CASE is or being a CASE family?	No one <input type="checkbox"/>	A few <input type="checkbox"/>	Some <input type="checkbox"/>	Most <input type="checkbox"/>	All <input type="checkbox"/>
Comments:					

Was the science content appropriate for the developmental levels of the audience members?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Were connections made to using and recognizing science in real-world contexts?	None of the time <input type="checkbox"/>	A little <input type="checkbox"/>	Sometimes <input type="checkbox"/>	A lot <input type="checkbox"/>	Throughout <input type="checkbox"/>
Comments:					

Did anyone leave early?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many and at what points in the presentation?	

Was presenter prepared and organized?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Was presenter confident and engaging?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Was presenter clear and audible?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Comments:					

Was presenter able to address audience questions?	None of the time <input type="checkbox"/>	A little <input type="checkbox"/>	Sometimes <input type="checkbox"/>	A lot <input type="checkbox"/>	Throughout <input type="checkbox"/>
Comments:					

If there were multiple presenters, did the presenters work well together?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Comments:					

Did the layout of the workshop site promote families exploring science together?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Did the physical environment constrain the design and/or implementation of the workshop?	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Comments:					

Did the presenter(s) leave time for questions at the end?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many and at what points in the presentation? Comments:	

Did the presenter's group management style enhance the quality of the workshop?	None of the time <input type="checkbox"/>	A little <input type="checkbox"/>	Sometimes <input type="checkbox"/>	A lot <input type="checkbox"/>	Throughout <input type="checkbox"/>
Comments:					

Did the instructional activities reflect attention to issues of access, equity, and diversity (e.g. language-appropriate material, culturally-relevant material?)	Not at all <input type="checkbox"/>	A little <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Very <input type="checkbox"/>	Extremely <input type="checkbox"/>
Comments:					

Concluding Remarks:

Appendix H

2008 CASE Reflection Session Evaluation Protocol

- **GRG Introduction:** *My name is Lori Dean. I am with Goodman Research Group, an education research group in Cambridge, Massachusetts, and I am here today as an evaluator, to hear from you what you thought about today's reflection session.*
- **Participant Introduction:** *Could we go around the room/table and have everyone say their name and what organization they're from? And, I'm also sending around a sign-in sheet so that I can remember who was here.*
- **Statement of Purpose:** *The purpose of the discussions today is for us to hear about your thoughts, opinions and reactions to the reflection session you just participated in. After this session, I will summarize what you have said and share it with the museums, so that it can be used to help improve the program for future Ambassadors and for the CASE program. What you say in this discussion is confidential; I will not use your individual names in the report to the museums.*
- **Request to Tape-record:** *I'd like to tape this discussion so that I can listen to what you say and remember it without taking lots of notes. Does anyone object to taping?*

Okay, a few guidelines before we get started. First, in some ways your experiences might be the same, but in other ways they might be different. I want to hear everyone's perspective, so please speak up if your experience is different than someone else's. Also, I want to hear from everyone, so if some people are talking a lot and other people aren't talking much, I might ask you if you have something to say. We have about 30 minutes to go through some questions I have, so if everyone is ready, I will start the tape and we can begin.

1. What did you think of today's reflection session?
Probe: In what ways was it helpful? In what ways was it challenging for you?
2. In what ways have you learned or benefited from having other Ambassadors share their experiences during the reflection session? (What did you gain from participating in the session?)
3. How will you incorporate what you learned about yourself today and what you heard from other Ambassadors to improve your workshops?
4. In the future, how could the reflection session be improved or what would you want to see changed for next time?

Probe: Did you have enough time to say all you wanted to say? How regularly would you want a reflection session? What did you think about the process of watching other workshops and having other Ambassadors present at your workshop?

5. What other ways could CASE help Ambassadors reflect on their work (e.g. Have Ambassadors: keep a journal? Take pictures? Videotape their own workshops?)?