



DragonflyTV GPS: Going Places in Science

*Study of Collaborations between Museums and Media
(Season 6)*

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(Season 6)

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Executive Summary

DragonflyTV *GPS: Going Places in Science* (Season VI) Study of Collaborations between Museums and Media

Introduction

In spring 2005, RMC Research, Portsmouth, NH began summative evaluation work on DragonflyTV (DFTV) on behalf of the show's producers at TPT, Twin Cities Public Television, in St. Paul, MN. The evaluation extended over the production of two broadcast seasons of DFTV *GPS: Going Places in Science*, a unique experience in which the television producers engaged staff at informal learning institutions around the country in the production of science investigation segments. Summative evaluation work was conducted for both Season V and Season VI of the series, and included two distinct parts: a study of the collaboration between science center and television personnel in producing the *GPS* series, and a study of children's responses to the video segments. This document is the final report of the Season VI collaboration study, and looks at the collaboration experiences which developed between the DFTV production staff and staff at fourteen science centers, museums, and national forests and parks as they engaged in the production of children's science television. The reports' final discussion, however, presents findings from Season VI in light of the experiences of Season V.

During the first phase of study, Season V, investigation focused on the fifteen collaborations between DFTV and the large informal learning institutions involved in the production of the Season V series. The second phase of study, Season VI, which is documented in this report, examined the collaborations between fourteen small and mid-sized informal learning institutions and DFTV staff. Thirty-two people, including educators, curatorial and public relations staff in the partnering institutions and DFTV staff members, were interviewed for the second phase of the study, using a model of baseline and final interviews.

During both phases of the study, the evaluation focused on the success of the project in engaging the two sets of professionals and their resources in the production of DFTV video segments, and documents the professional development outcomes, particularly the ways in which informal science educators working in television and museums expand their understandings and practices in science education.

Findings

The study presents a number of findings related to conditions necessary for and challenges of building successful media-museum partnerships. These related to building effective communication strategies, recognizing a shared mission, and clearly articulating the roles and responsibilities of the partners. In addition to these universal elements of successful collaborations, a number of concerns specific to the museum and media work cultures and environments also emerged. While many of these findings would be true in any cross-industry collaboration, others are unique to how television and museums work.

The study also presents findings related to the outcomes of the collaboration, including museum and television partners' appraisals of the value, quality, and potential use of the science inquiry

segments produced through the collaborations, and the cross-industry learning which resulted from the process of collaborating.

Conclusion

The collaboration process and potential for professional development outcomes for partners in the two industries varied. The “one-to-many” structure of the project allowed DFTV staff members to use the experience gained in one collaboration to inform the next collaboration, and learning from one season was applied to the next season’s collaboration. In contrast, each of the museum partners experienced the collaboration as a one-time event, although the second set of participants benefitted to some extent from the experiences of the first season, through information conveyed at a partner meeting and an ASTC session, for those who attended.

DFTV staff began Season VI having worked through fifteen earlier collaborations, albeit with much larger informal learning institutions. They started the season with a much greater understanding of the work flow and bureaucracies of science museums, as well as communication strategies. They also used the print and DVD resources that had been developed in the first season to support their communication. Nevertheless the Season VI institutions and collaborators presented new challenges and opportunities.

The Season VI museums represented a wider range of institutions than in the previous season. They included university and state museums, collections-based natural history museums, hands-on science centers, and visitor centers in national forests and parks. They included institutions focused on a single theme, such as environmental conservation and technology, as well as those with broader missions, such as aquariums, natural history museums, and interactive science centers. And they varied in their offerings. Visitor centers tended to have more limited exhibitry than the museums, while some of the smaller interactive centers offered more table-top activities than traditional exhibits. Consistent with their larger cousins, the Season VI museum partners came into the collaboration with a range of experience and understanding of science education and inquiry-based learning. These unique science orientations and resources shaped, in different ways, the collaboration process.

DFTV producers started Season VI with a wealth of experience related to the challenges of staging DFTV segments in locations outside of their home base, developing appropriate and effective investigative stories at science centers, and working with museum bureaucracies. They had developed specific strategies for communicating with museums, including assigning a dedicated staff member who fostered the partner relations in the early stages, and a more nuanced view of how to represent learning institutions in DFTV investigation segments. From a focus primarily on museum exhibits in Season V, the production of Season VI more fully explored other features of the partner institutions, e.g. through a presentation of the mission, such as conservation or open-ended inquiry, and/or through the natural resources as an opportunity for field study, as in the videos produced with the national forests and parks. The institutions and exhibits themselves were integrated into the investigations in a range of ways, designed in each case, to best serve the topic and investigation appropriate to that institution. In some cases the entire investigation was conducted at the institution, while in others, the institution provided a jumping off point or resource for an investigation conducted elsewhere. In all, however, the science centers were positively linked with children engaged in pursuing science investigations while having fun.

The collaboration resulted in the successful co-production of fourteen segments during Season VI. Echoing the praises of the prior year, most museum partners were delighted with the degree of input into the production process they were afforded, noting that it was rare to be given the opportunity for such involvement on a media project. Museum partners were pleased with the final segments and looked forward to using them for educational purposes, such as introducing visitors to their center and its offerings or providing specific content instruction. They also looked forward to using the videos for internal and external marketing purposes, such as sharing with board members, and with funders and others beyond their institutions. In most cases, the small institutions felt honored to participate in a high-profile national production and were proud of the final product. While national exposure was important on its own, even more significant was the presentation of the institution's educational work. The latter was especially true for the national forests and parks, who were less interested in increasing visitation than in showcasing their educational activities.

Overall, DFTV staff found partnering with the smaller institutions easier. Working in some cases with the executive director of an institution, and in others with a closely-knit staff, they found that they invested less time and fewer resources in communication and decision-making. In addition, they did not experience the sort of conflict between public relations and educational missions which they had confronted when working with the larger institutions. The smaller centers immediately understood the educational mission of the collaboration and viewed the public relations benefits as consistent with this. They were, in most cases, flexible about what aspect of their institution would be featured, and embraced DFTV's emphasis on science inquiry.

The collaboration provided a professional development opportunity for museum partners. They reported valuing what they had learned about media production, and said the collaboration would prepare them for future media collaborations, as well as the expanding role of media within their institutions. They wrestled with questions about how best to use television or media to convey science, and the type and quantity of science content which is best conveyed through television. The experience also provoked reflection on other aspects of their work, including how they teach inquiry in their institutions, and how they interact with and serve young audiences. They appreciated as well the opportunity to network with colleagues at other institutions through the DFTV planning process and the ASTC sessions.

Culminating events, celebrating the premiere of the DFTV segments for public audiences, provided an opportunity for the partnering institutions to build relationships with local PBS stations. All of the partner institutions participated in events, involving seven PBS stations. Museums felt the connections made with PBS stations were an important benefit of the project, and some had either already initiated or were talking to their local stations about further collaborations. This was a component of the project that was particularly compelling for the small and mid-sized institutions in Season VI.

DFTV developed an increasingly nuanced representation of museums and museum learning over the two seasons. The inclusion of adults in a way that authentically reflected their role in supporting children's learning and investigations was noted by both DFTV and museum staff. And interviews with DFTV staff indicated improvement in their own understanding of and engagement with science education issues, such as how to model scientific investigations that feel accessible to children, how to treat "exotic" locations or activities, and how to create investigations that could be reproduced at home.

Consistent with findings from phase one, collaboration participants had to meet a number of challenges, both those common to all collaborations, such as articulating shared goals and clarifying roles and responsibilities, and those unique to museum-media partnerships. Museum partners were challenged to understand the television production process, learning television terms and understanding how media communicates science differently from the way science is presented in the museum setting. Production staff were challenged to represent a diverse set of institutions, with varying resources such as extensive or limited exhibitry, hands-on offerings, and natural wonders, into the DragonflyTV show format.

Each set of partners learned about the other—their work cultures, the media they work in, and their points of continuity as informal science educators. They also expanded their own visions of potential learning experiences and developed a better understanding of how to work in media-museum collaborations in the future. But perhaps most important, the collaboration opens space for a new dialogue about strengths, limitations and potential for informal science education in different settings.

Introduction

In spring 2005, RMC Research contracted with the producers of DragonflyTV (DFTV) at TPT, Twin Cities Public Television, St. Paul to conduct a summative evaluation of Season VI of the TV series, produced with science centers under the title DragonflyTV *GPS: Going Places in Science*. The evaluation plan comprised two distinct parts: a study of the collaboration between science center and television personnel in producing the *GPS* series, and a study of children's responses to the video segments. This document is the final report of the Season VI collaboration study, and looks at the collaboration experiences which developed between the DFTV production staff and staff at fourteen science centers, museums, and national forests and parks as they engaged in the production of children's science television. Final comments offer a synthesis of findings from this study and the prior collaboration study (Season V).

DFTV is a half-hour science series, now in its sixth season on PBS. Its format is simple: Real kids doing real science. The series does not feature child actors or adult presenters; it captures ordinary kids doing their own science investigations and showcases them in fast-moving videos with popular music soundtracks. In their own voices, kids tell how they pursued their investigations and communicate the infectious excitement that comes with making their own discoveries.

Unlike other science shows for kids, DFTV is not a collection of facts: It's about the scientific process. In every segment, children pose questions, design and conduct experiments, gather data, analyze that data, draw their own conclusions, and pose further questions, an approach based on the "full inquiry" model recommended in the National Science Education Standards.

Each episode in the *GPS* series explores a different city and follows children as they visit science centers or science museums. Each video segment typically consists of two parts: the children begin their investigation at a museum exhibit, making observations and asking questions, then continue their investigation or a related activity outside the museum.

The innovative design of the *GPS* series brings together two groups of informal science educators—television and museum professionals—in a unique collaboration. While television productions have frequently collaborated with museums to create and distribute outreach materials, and news crews often shoot journalistic pieces at museum sites, the DFTV collaboration uniquely a) engages the resources of both sets of professionals in the show's production, and b) presents the museums on the television program. It was hoped that the collaborative process would engage informal science educators in learning about other modes of science communication and understanding how different media and science learning experiences can complement one another.

This study addresses the collaboration experiences of DFTV and partner institution staff during the second series of *GPS* programs. These episodes aired on PBS as Season VI and premiered in April 2007. However, the study builds on evaluation work begun on the first series of *GPS* which premiered in spring 2006, and involved fifteen informal learning institutions. While Season V collaborators included institutions selected from among the country's larger science centers and museums, Season VI involved partnerships developed with smaller institutions, including science centers, museums, and visitor centers in national forests and parks.

The study examines how the project engaged both sets of professionals and their resources in the production of DFTV investigative segments, and documents the professional development outcomes, particularly the ways in which informal science educators working in television and museums expand their understandings and practices in science education.

Season VI Goals

The evaluation of Season V also documented the collaboration experiences of museum and television professionals. This included identification of aspects of successful collaborations, challenges—both generic, and specific to the intersection of media and museums—and documentation of self-reported professional growth. The evaluation of Season VI was designed to build on the work done in Season V, but with a few significant differences.

In Season V, DFTV reached out to major science centers and museums across the United States, developing partnerships with organizations such as The Exploratorium, the Bronx Zoo, and the Carnegie Science Center. Recognizing the importance of the growing number of smaller, regional science institutions, in Season VI, DFTV reached out to a second tier of organizations—described in its plans, as “mid-size to small museums, with operating budgets below \$5 million.”

Continuing as well with the travelogue-style of the *GPS* series, introduced in Season V, DFTV producers identified seven regions of the country which had not been included in Season V. From there they built a total of fourteen partnerships, with a mix of regionally-based hands-on science centers, natural history museums, university museums, and visitor centers at national forests and parks.

There are significant differences between these institutions and those engaged in the Season V collaboration. The smaller museums tend to have more intimate and accessible exhibits than their larger siblings, and often have deeper and broader ties to their communities. In addition, recognizing that building connections with local PBS stations might be especially important for these smaller institutions, DFTV worked to foster the development of working relationships between science museums and their counterparts at their local PBS stations.

This report documents the collaboration experiences during Season VI, and provides a summary drawn from Seasons V and VI related to the challenges and benefits of museum-media collaborations.

Methodology

The centerpiece of this investigation was a series of in-depth telephone interviews conducted with television and museum personnel throughout the collaboration process. Interview questions were designed to illuminate areas of continuity and divergence related to perspectives on informal learning, successes and challenges in the production process, and outcomes and impacts of the collaboration. The study followed a framework, developed in Season V, of conducting baseline and final interviews. Baseline interviews took place before shooting at each institution; final interviews were conducted when the activities were completed, providing a culminating reflection on the overall experience.

However, because several of the TV production staff were unchanged from Season V to Season VI, only final interviews were conducted with production personnel. And the more fluid and idiosyncratic nature of partnerships that developed at the smaller institutions meant that rather

than pursuing interviews specifically with an education and public relations contact at each institution, as was the process in Season V, the actual partners in the collaboration were interviewed, ranging from an institute's executive director, to individuals outside of the institution serving as content leads.

Participants

Twenty-five museum partners and seven DFTV production personnel participated in interviews. Interviews with DFTV staff included the DFTV researcher, science editor, associate, segment and senior producers.

Personnel interviewed at the museums varied for each institution reflecting the unique configuration of museum partners. In Season VI, a single contact often oversaw all components of the collaboration, and sometimes looked to additional staff to fill particular roles. A key contact at the time of the baseline interviews may have been the only person involved at that point in the collaboration, while others were brought in later in the process. For these reasons, different partners were interviewed at different stages of the collaboration and included museum education and communications personnel, as well as museum directors and off-site science specialists. Table 1 shows the total number of interviews conducted during each stage, by professional role.

The timing of interviews for television and museum partners differed to reflect their unique roles in the collaboration. Baseline interviews were conducted with museum partners between August and December 2006, as contacts at each institution were established. The majority of the final interviews were conducted in May and June 2007. Interviews were conducted with DFTV staff in January and February 2007, at a time when the collaboration experience was still fresh, and the video segments had been completed and reviewed by museum partners.

**Table 1
Study Participants**

Institution	Title	baseline	final
Mendenhall Glacier Visitor Center	Education Specialist	*	x
Mendenhall Glacier Visitor Center	Professor, University of Alaska	*	x
Southeast Alaska Discovery Center	Education Specialist	*	x
Museum of the Rockies	Education	*	x
Yellowstone National Park	Education Program Director	x	x
Montshire Museum	Director of Education	x	x
Montshire Museum	PR Manager	x	x
MIT Museum	Director, Exhibitions and Public Programs	x	x
MIT Museum	Director, Public Relations and Marketing		x
NC Museum of Life and Science	Senior Director for Guests and Schools	x	x
NC Museum of Life and Science	Museum Educator	x	x
SciWorks	Director of Programs and Education	x	x
SciWorks	Director		x
SciWorks	PR Manager		x
Explora	Educational Services Director	x	x
Explora	Associate Director	x	
Explora	Development Director		x
Explora	Educator		x
NM Museum of Natural History and Science	Chief of Education	x	x
NM Museum of Natural History and Science	PR Manager and Public Information Officer	x	x
Mississippi Museum of Natural Science	Museum Director	x	x
Mississippi Museum of Natural Science	Biologist		x
Southern Environmental Center	Director	x	x
Maui Ocean Center	PR and Marketing Manager	x	x
Hawaii Volcanoes National Park	Supervisory Park Ranger	x	x

* evaluation began after shooting at this site; baseline questions were rolled into final interview

Participating Institutions and Segment Descriptions

The participating institutions and DFTV segment to which they contributed are listed below by city or region.

Alaska

Glaciers: Deborah and Brittani learn about changes in glaciers over time at the Mendenhall Glacier Visitor Center before scaling the Mendenhall Glacier to track its movement.

Temperate Rain Forest: Starting at the Southeast Alaska Discovery Center in Ketchikan, Emma and Gracie investigate tree growth rates in three areas of Tongass National Forest.

New Mexico

Balloon Fiesta: Alex and Andrew head to Explora to investigate how much hot air is needed to make balloons fly before taking a ride in a real hot-air balloon at Albuquerque's International Balloon Fiesta.

Cave Swallows: Exhibits at the New Mexico Museum of Natural History and Science inspires Emily and Isabel to travel to Carlsbad Caverns and track the population of cave swallows.

North Carolina

Wetlands: After a visit to the North Carolina Museum of Life and Science, Sarah, Valencia and Sophia visit three different wetlands to study the different plants in animals.

Farm Animals: SciWorks' barnyard gets Imran and Nabil thinking about what it takes to raise farm animals, prompting visits to local donkey and dairy farms.

Montana and Yellowstone

Baby Dinosaurs: Nicole and Ellen dig up a dinosaur fossil at Egg Mountain and then head to the Museum of the Rockies to find out how old their dinosaur was when it died.

Geysers: Phoebe and Shannon roam Yellowstone National Park investigating why some areas have geysers while others do not.

New England

Kinetic Sculpture Challenge: Elly, John, Nick, and Linnea get help from the MIT Museum preparing a kinetic sculpture for the Friday After Thanksgiving Chain Reaction challenge.

Gravity Fountain: At the Montshire Museum of Science, Chloe and Jesse try out the water exhibits and build their own gravity-powered water fountain.

The Deep South

Garbology: Joshua and Sean investigate the composition of garbage at the Southern Environmental Center.

Alligator Habitat: The swamp exhibit at the Mississippi Museum of Natural Science inspires Katelyn and Blake to compare the characteristics of different alligator habitats along the Mississippi River.

Hawaii

Volcanoes: Starting at the Kilauea Visitor Center on the Big Island at Hawaii Volcanoes National Park, Julia and Briana investigate lava flows and their impact on native plants.

Sea Turtles: Zach and Devin monitor the readiness of baby sea turtles for release into the wild at the Maui Ocean Center.

Instruments

The baseline interviews were designed to gather preliminary data on the museum partners' understanding of science education concepts such as inquiry and interactivity, perceptions of

science education in the television and museum contexts, and their expectations for the collaboration. Interviews were tailored to interviewees' roles in the collaboration.

The final interviews were designed to document the level of satisfaction with the collaboration and final programs, to capture changes in knowledge or attitudes about informal science education as a result of the collaboration, and assess the project's perceived value. DFTV production staff members were also asked to reflect on how their experiences during the two seasons of museum-based production differed.

Interview protocols appear in Appendix A.

Analysis and reporting

All interview data were entered into Atlas.ti and coded with key phrases. The data was then analyzed to identify patterns in participant responses and to illuminate the diverse experiences and perspectives of participants on both sides of the collaboration.

Limitations

The greatest challenge of this evaluation is capturing what museum professionals learned as a result of the collaboration. Learning is an on-going, cumulative, and often unconscious experience, and while interviews at their best can offer an opportunity for participants to reflect on their experiences, the short time-frame of the evaluation precludes a deeper understanding of how, for instance, in the case of some museum professionals, this first exposure to conducting science inquiry on television will impact their museum work or careers.

Findings

The collaboration between museums and media in Season VI produced fourteen new science investigations linked to a science center, museum, or visitor center. The following section describes the partners and processes involved in the collaboration, specifics about the trials and tribulations related to working across two industries and work cultures, and the successes and challenges they faced.

Although the collaborators included museums, science centers, and visitor centers, the terms “museum” and “science center” are used to refer to all of the partners. There were, however, some differences in the perspectives, particularly between museums and science centers on the one hand, and national forests and parks on the other. In those cases, the views of national forests and parks are noted specifically.

Partner Background Information

Like the Season V partners, the smaller museums participating in Season VI were all committed to the importance of inquiry-based science education, but their knowledge and emphases in both their definitions and the application of inquiry-based science varied. Like the larger institutions, definitions of inquiry included a student-centered process, focused on children’s own questions, pursuing answers to open-ended questions, and the role of social interaction in inquiry experiences. Museum partners noted as well the different possibilities for engaging visitors in inquiry depending on the amount of time available.

One notable difference was the emphasis made by some of the smaller institutions on the importance of materials, particularly, the value of “manipulables,” i.e. materials which visitors can manipulate for learning. For instance, one small museum partner discussed “object-oriented kits” which they use to engage students in a specific scientific activity, while others emphasized the importance of choosing materials “that allow people to do diverse number of things with them.”

Consistent with the larger institutions, ideas about interactivity most often included discussions of physicality and exhibitry that could be manipulated by the visitor. However, some challenged the usefulness of the term, emphasizing instead the importance not of the interaction, but of the control of learning by the visitor, transformation of both exhibit and visitor, or the importance of intellectual engagement.

The unique offerings of the different institutions were more noticeable in the responses regarding education. While some of the smaller hands-on institutions emphasized the richness of open-ended experiential opportunities they offer, a natural history museum educator noted their limitations in this area and how they create opportunities for interactivity using small carts. Educators at some of the visitor centers noted that their institutions provide a different set of experiences. They recognized that they have traditionally offered lecture-based education programs, including guided tours, and only recently embraced the development of interpretation and inquiry opportunities in their visitor centers. They also emphasized the value of the natural landscape as a site for field work and inquiry-based education.

Museum partners had varied backgrounds in media production and collaborations. The most common experiences were working with news crews who were doing a story on site or covering a museum event. In a few cases, partners had worked on documentaries or extended education projects. Some of the visitor centers, in particular, hosted a substantial number of shoots for documentary, travel, and educational programs. However, most agreed that the DFTV production process had offered more opportunity for their input than had other media projects.

The smaller science centers in Season VI came into the partnership with varied relationships with their local PBS stations. Five of the fourteen partners described existing relationships with their local PBS station, while the others had not had any contact. For some, the opportunity to develop a relationship with their local station was one of the most valuable aspects of the collaboration.

What Makes for a Successful Collaboration?

Recognizing a shared mission

Museum partners saw participating in the DFTV collaboration as an opportunity to extend their science education and conservation missions, which they recognized were shared by DFTV.

Museum partners looked forward to seeing science museums presented as an appealing destination for children. One explained, “I would certainly hope that people will watch and say, ‘Oh we should go check out our museum and maybe it’s like that.’ It will let people know that everything is science related; even if you are interested in art or history, there is a science lesson to be learned.” Others said they hoped that viewers would “see meaningful science,” “that anything that can help kids stay involved in science is ultimately beneficial,” and “It will show that this kind of science is stuff you can do; and doing science is a way of answering questions and trying things out.”

Several of the smaller museums felt that the particular model of science education promoted by DFTV resonated closely with their own. One compared DFTV to other science programs and explained, “DFTV is much closer to the model of what we try to achieve at the museum. Not just edutainment. We try hard to avoid the pitfalls of gee-whiz science.” Others pointed to DFTV’s link between the real world and science investigation as similar to their own mission, and looked to DFTV as helping to re-invigorate or extend their mission, for instance by getting people excited in the natural world or in science investigation. Noting DFTV’s tag line, one explained, “real kids doing real science, that’s what kids do every day here.”

Museum partners saw collaboration with a nationally broadcast program as an opportunity to boost their reputations within their professional and local communities.

Comments from DFTV and museum staff concur that these partners were excited about being part of a national broadcast, which would benefit them by elevating their stature within the museum community, with board members, and funders in other states. Some of their comments included, “National PR will be great for my quarterly report,” “The fact that our institution was chosen and one of our projects chosen is a good morale boost [for staff],” and another explained that it would be a positive experience for their state to be included in a national broadcast, “Good for our community.”

Several of the comments reflected their perception of themselves as competing with larger science centers for exposure and prestige. One museum partner recalled being contacted, “I was amazed and flattered that they thought of us and not the big aquarium on the main island,” and another said, “When you are a small museum, unless you are the only game in town, there is a lot of competition. I want people to think of us as often as they think of the Museum of Science in Boston. When you engage in projects like this, other museums take notice.” The DFTV researcher explained that only one institution expressed initial reticence to engaging in the collaboration, explaining that they were an organization with an international reputation as a research institution, and that DFTV should be applying to them for the partnership. But after learning more about the proposed partnership, they agreed to participate.

The opportunity was seen as unique for national exposure which might impact visitorship.

Participants said, “What better advertisement can I have? People all over the country will see it, hopefully if they are in town, they will visit,” “[it was an] opportunity to have our institution showcased to broader audience. We don’t have a huge advertising budget. To get our institution shown all over the USA, in a very positive way is a big thing for us. It has made us examine how we present ourselves,” and “I see this as a pretty rare opportunity to do national media. I would be happy if we got some attention from local media. It just cements the notion that this is a happening place.”

Although the video program would be broadcast nationally, most partners hoped that local broadcasts would expand their local visitorship, either by attracting visitors of different ages, or expanding the community’s knowledge of the institution’s offerings. “[The collaboration will be a success] if it gets more exposure of the museum to people who don’t know we are here. Perhaps someone in another part of North Carolina who didn’t know it was there, or that it had such cool stuff.” They also hoped to “make people realize how many more resources are in their communities for doing science and exploring.”

The opportunity for national media exposure that highlighted their educational missions and offerings was a perceived benefit of the collaboration.

Both museums and national forests and parks felt the exposure was important because it highlighted aspects of their institution that were not commonly known, depicting lesser known parts of their exhibits, publicizing the role of national forests and parks in education, or reaching out to children—especially to tweens. As one national park partner explained, “We do work with tons of film crews every year. They don’t always share our message, which was one of the good things about DFTV—communicating messages about preservation and that this is a special place on earth.” While one of the traditional museum partners said, “Getting the actual education message out is a goal for me. Whether they come or not, they can learn from the program about any animal; that would be a personal goal of mine.” And another said, “On a PR level, being featured on a national TV program is enormous. Even better is being featured in a way that fits our mission of education and science. It reaches far more people than currently know about us.”

A few looked forward to the publicity as a way of showcasing new facilities, including visitor centers. And one visitor center employee explained, “For our park—we don’t need any more visitors—we get over two million a year—but it puts the name out there in a more educational light, using the park as a living laboratory.”

Partners recognized the DFTV opportunity as a rare chance to provide exposure for science centers, and to do so in a way that would represent science centers as fun destinations for children. They also came into the collaboration with clear ideas about how their institution and/or community would be represented.

They were excited about DFTV's depiction of museums, e.g. "I don't remember any other show that has utilized museums so creatively—every episode I've watched, I want to go to every museum," and "I think from the subject matter perspective of exploring the institutions and what they have to offer [it] is groundbreaking." Some of the ways they described that they would like to be shown included, "making it look like a neat fun place that I would go to with my children," "that we are a place of doing not just looking and reading labels; we are interactive. We want to make sure science learning continues and that we are stirring up curiosity about science so people want to learn more. We are not the old museum;" "If they got pictures of kids and adults working together trying things and talking then they got what the [museum] is trying to be;" and "If they realize national parks are about protecting natural resources, then we've succeeded."

And almost all of the institutions expressed concern that the unique character or spirit of their institution be captured in the DFTV segment. When asked to describe these, their responses included describing their institution as "funny, playful, serious, entrepreneurship, no fear of failure, because you learn from it," "the chaotic way things are moving," and one hoped "the aesthetic of the environment will, I hope, come through," noting that DFTV might need to "slow down the pace, and show longer activities." In a few cases, museum staff expressed concerns about portraying "wow" science, focusing on the personality of the presenter, or being too "glitzy," and that the science content would suffer, e.g. "I don't want science to be a whiz, bang demonstration thing."

In a couple of instances museum partners were concerned that the culture of the community be appropriately represented. For instance, one museum partner explained, "If the Hawaiian culture is somehow bastardized and the Hawaiian people mischaracterized, that would be a real drag, and if somehow it appeared you should go out and collect rocks and take anything from a national park, or were altering the landscape [that would be bad]." Another site was particularly concerned that the ethnic background of the community be represented in the selection of child investigators.

Partners recognized the DFTV collaboration as an opportunity to reach out to tween audiences.

Media that focused on tweens was important for some as a way of reaching out to this audience and letting them know that their institutions had something to offer. They said, "It's a group that is highlighted by DFTV that we are interested in lengthening their involvement in the museum. We'd like to hold onto them through middle school, instead of 5th grade," "The museum is trying to become better known and as part of our mission we are trying to work with grade 7-12, so this is a way of reaching that audience," and "the actual segment is valuable because we get a lot of press and Discovery channel and National Geographic, but not much that is geared towards kids."

Establishing clear roles and responsibilities

DFTV staff found that there was a high level of museum engagement, with a greater involvement of executive directors and other senior staff than with the larger institutions included in the Season V partnerships.

In most cases, initial contact by DFTV either went directly to the museum director or through the public relations department “because of a belief that DFTV needed their buy-in.” What developed was a single key contact in each museum. In some cases, this was the museum director, while in others, someone either in the public relations or education departments became the lead contact. However, unlike the larger institutions from Season V, DFTV staff found that there was greater contact between different departments, with the educational mission more pervasive in all departments. For instance, in two of the partnerships, a public relations manager was the key contact, but both had education backgrounds as well. And the smaller staff at these institutions, including the visitor centers or education departments of national forests and parks, often meant that a single individual had multiple roles. In one case, the main contact was the “education specialist that does outreach to the schools,” who was both the educator and main public relations and media contact for the center. In several cases museum directors remained deeply involved throughout the process of the production, but pulled in staff as needed: “Research and education did more on scripting, and aquarium and exhibit staff worked on floor doing shoot,” explained one. In some cases it was the executive director who assisted with logistics throughout the actual production.

Production staff indicated that they were able to apply knowledge about collaboration roles and responsibilities gained from Season V when communicating with museums.

DFTV staff described how they attended to these needs as follows: “We just need to remember to explain everything. We talk in TV terms and we just forget. We sent out the same packet to partners and to kids so they can reach us, and let them know that it is a tentative schedule, and that it is about having fun, and keeping it light,” and another explained that he had learned to start “communicating from the beginning. When I was in one location, I was already emailing people in the next, and letting them know that, ‘you’re not going to hear from us, and then we are going to need things fast.’ Really communicating, let’s get initial idea going, casting call (month before shoot), then you won’t hear much, then a week before shoot a lot is going to come up. Both sides need to be flexible. Tell me what works best for you and what won’t work with dates. They need to know that things could change the day before we leave or even once we are there.”

Museum partners were mixed on how prepared they felt. While some felt well-prepared others were anxious about what was expected of them going into the production process.

In final interviews, most related that they felt well-prepared, e.g. “No challenges—just having patience, and knowing that you are going to be there the whole day. I would do it again, and would do a better job this time.” In a few cases, in which they had some experience with production, they noted that they were better able to anticipate needs, e.g. “It was hard to know what was needed from both sides (center and TV). I had to explain the experiment and what it would look like. I had worked on “America’s Rain Forest” one year before so I did know that the more I had ready when they got here, the easier it would be. I did all the background and had all the data set up which is a lot of work, but I knew if I hadn’t it would take much longer with all the takes and starts and stops.”

Some of the museum partners interviewed before their shoots (particularly those scheduled prior to the meeting that DFTV had for all the partners) were anxious about what would be expected of them during the shoot. For instance, one explained right before the shoot at her institution, that she would like “a real specific list of who’s doing what, who is responsible for what. They asked if we minded researching these activities a bit more, but I understand they are not for us to come up with, and writing script. I don’t feel one hundred percent about this. I’m afraid they will come and ask us, okay how does this work? It surprises me a little bit about the time scale. If that works for them—as long as we don’t find out we have responsibilities we didn’t know about.” A few noted with concern that the script was not finalized until right before the shoot, e.g. “They will be here in two weeks; and the activity is not set, so that leaves some room for concern.”

Museum staff noted that this collaboration was different than most of their earlier media collaborations in that they had greater input into the content of the video segment than in other productions.

Museum partners were pleased with the opportunities they were given for input into the story development. Some of their comments follow: “[The producer] was allowing us to be a part of it as much as we wanted to be, and letting us shape the feel of the investigation,” “To me that was really one of the most enjoyable aspects of the project. It seemed like we had a voice. It was—equal is not the appropriate term—but that they listened to us. When it was appropriate they paid attention to what we were saying,”

Others reflected on other productions with which they had been involved, and noted the greater roles they were afforded with DFTV. Their comments included, “I usually do travel shows. This is the only time I’ve had significant input,” and, “The neat thing about this process was that we were involved from the front end and that usually doesn’t happen, so I think that having an outcome, a DVD, that we were involved from the beginning was a real strong point. To be involved from day one on a project like this.”

They embraced their roles as content experts and felt their opinions and concerns were respected, throughout the production process.

Museum partners noted not only that they had been given greater input than in previous media production experiences, but also felt respected. They said, “My ideas and suggestions have been taken seriously,” “DFTV staff was very respectful of our staff knowledge, never wanted to put words in anyone’s mouth. It was very good to work with them,” and “They made me feel like they needed me and would make sure my views were recognized.” And one summed up, “I appreciate that they put up with me being nitpicky. But if they are working in a science realm, they have to allow people to have that—content and science.”

During the shoot itself, DFTV and some museum staff recognized that supporting the production crew facilitated their production experience.

In most cases, museums assigned a staff member to stay with the crew throughout the shoot to be available for both logistical and content questions. One museum partner described their role in production as follows. “DFTV folks were driving the car and we were along for the ride, and whatever made it an easy trip, we wanted to do.” Producers noted that having support from the museum in this way, to help with last-minute logistics or to anticipate production challenges, made the shooting experience easier. Their comments suggest their ideals for support both

leading up to and during the shoot, e.g. having “someone on the group who can scout locations and test things for us, makes a big difference,” and once they were on site, “A good collaboration was [where a staff person] was able to hang out with us.” And producers described one instance where a staff member was present throughout as follows: “We didn’t ask much of him, but when we needed him for verification of the science portion he was there to help us out.” Producers noted that in a few cases, it was the museum director who provided this on-site support.

Museum partners were asked to host the casting calls. Most were happy to do so, though it was a challenge for some.

DFTV staff noted that the main challenge in relation to casting calls was simply explaining the overall process to museum partners, but noted nevertheless that the partners “were all open to this and helpful.” Museum partners generally concurred that they were happy to be involved in the casting process, though in a few cases, they had been particularly nervous about completing these responsibilities.

One producer explained that helping museum staff “anticipating the unexpected” was important in easing their fears, and that they had offered strategies for handling a large turnout and other exigencies. For instance, one museum educator explained how they had handled an unexpectedly large turnout by using two cameras instead of one.

Each partner institution received a mini-grant of approximately \$8000 to cover staff costs. Museum partners appreciated the mini-grant as both helping covering their expenses and an important gesture recognizing the considerable effort on the part of museum staff.

While some felt the estimate of 80 hours of staff time was accurate, others noted that this estimate was probably a bit low. Regardless of their position on the time estimate, museums were appreciative of the stipend, both for covering costs—“It is definitely helpful for smaller institutions where you have a smaller labor budget. It took time and will continue so”—and as a recognition of their professional efforts, for instance, “It would be nothing worse than expecting a museum to put the time in with the idea we are just doing it for the publicity. It is nice and also appropriate.” Some of the executive directors’ comments included, “if we think something is interesting and worth pursuing, we don’t mind investing our own resources in it. In terms of staff time, the stipend didn’t cover it,” and “We’re delighted to do it regardless. But it does involve a lot of time. Other things are put off while working on DFTV.” In some cases, institutions used the funds for special expenses such as purchase of a video camera and a staff visit to another institution, rather than applying them to operating costs.

National forests and parks received a fee for filming and were also satisfied with the stipend. Their comments included, “The fee helps for staff time for public affairs to fund [the educator’s] position,” and “It will work out that there is benefit to the park financially. We will have expenses covered enough to feel like it was a team effort.”

Aligning work cultures and expectations

DFTV staff producers explained that they were prepared for the different pacing and turnaround time of the museum culture, and made an effort to be patient and understanding in working with partners.

Referring directly to the different pacing of work in the two industries, one producer explained, “One thing last season which was an issue for us was TV time, expecting a fast turnaround. I had different expectations this year, and tried to give myself more time. I would get to the point in the email, and give them multiple ways of getting back in touch with me. I didn’t have any problems with that [this season].” Another explained that she recognized that, “we can seem very demanding, and our requests are always on the basis of ‘this needs to happen now.’ We can seem pushy. Ideally we are doing it in way that hides that and seems more collaborative. It is capital intensive, short time frame. We are different than a museum that explores things such as building new exhibits over the long term—theirs is a thoughtful, slower process.”

Production and museum staff noted particularly the time leading up to the shoot and the shoot itself as requiring a high degree of commitment and intensity on the part of museum staff.

Producers realized they needed to prepare partners for the intensity of DFTV needs immediately prior to and during the shoot. One producer described what she said to her museum partners, “It is going to interrupt your daily activities and participation on your part is going to make it a success,” and then explained that “some of the partners didn’t realize how much work it was. The week before a shoot I’m calling everyday, and while we are there, we need someone with us.”

Some of the museum partners found the expectations for a quick turnaround on information needs and decisions challenging, e.g. “the frantic pace at which TV producers work was a little bit tough to deal with. They would say I need this, but I would say, ‘I have a job to do’, though [recognized that] this is part of it,” and “The only thing I was not prepared for was the amount of time just before filming. I wasn’t sure of my role in terms of the script. They needed a lot of info from me. For the next time, I’d know right before they film to be available. I took vacation then and wouldn’t have if I had known. I’d block the week out.”

Delaying finalization of the script until just before shooting was difficult for some of the museum partners.

Several museum staff were taken aback that the script was finalized just before shooting. “The only surprise was that this is a loose collaboration and at the end you are going to be tweaking the script the day before the shoot, and you’re not going to be even seeing the script until a week before the shoot. I was surprised at how much time commitment [was required] at the end.” And another said he would have been better prepared had he known about the pacing of the scripting, “reading and editing it—it was fast. Pretty straightforward, but a quick turnaround time. I would get it on Friday late and the time zone difference made it difficult to work within. But they were always available on their cell phones after normal work hours.”

Museum staff were occasionally frustrated by production staff unavailability, although they noted they had been warned of this.

One museum partner explained “It was really great. The only concern was what had already been expressed in St. Paul—that they are hard to get a hold of them when they are filming in another location.” And another said, “No concerns, just little bit of concern about lag in responses and communication because they are off shooting somewhere else.” And in one case, the museum contact went on vacation just before production, adding further complexity to planning the shoot.

The producer explained, “I had to do producing from the road when she came back. That might have led to some panic on her part, because she was aware of the shoot coming up but not aware of what was going on.”

Among the most common advice given by museum partners for future participants was to be aware of the intensity of the involvement in the time leading up to and during the shoot.

Some of their comments and advice included, “I had no idea how long it would take. I was with them all day which I had not planned on. Plan on them falling behind their own schedule,” and “I ended up spending more time on it that I thought. There are just a lot of logistics and I ended up dealing with that. Boat, sea kayaks, etc. It started out that they had a couple of questions, and then did you know where we could get this....but it definitely had mission creep.”

And one partner whose shoot occurred before the partner meeting noted that she had been especially squeezed for time and would have liked longer notice of when the shoot was coming up, but concluded, “Museums coming in need to know that this is a commitment, but you get a lot out of it.”

Production challenges

Recognizing the challenges in Season V of focusing on a museum exhibit as the basis for an investigation, DFTV staff in Season VI asked museums for a more general description of the visitor experience at their institution. In some cases this approach helped capture the spirit of the institution.

Arriving at a suitable topic that reflected some aspect of the museum and investigation that fulfilled DFTV’s science inquiry criteria lay at the heart of the partnership. DFTV and museum staff noted that in some cases these fell in place easily and in others they involved a more extended process. (For time and budget reasons, DFTV staff were not able to visit the partner museums in advance of the shooting.) During Season V, DFTV producers realized that building stories around an exhibit was challenging because it opened up a concern for showcasing particular exhibits for promotional reasons, and because they often proved a difficult jumping off point for developing a hands-on investigation. According to the science content producer, “We learned to make sure that centerpiece of discussion was NOT something on display or an exhibit. We went after something more conceptual than concrete. If a visitor comes to a museum, what experience do they come away with, what stays with them days later? How are we going to convey to the television viewer what its like to be a visitor to this museum? So the investigation only had to be loosely tied to that.”

In some cases, DFTV staff found that it was difficult for a museum to articulate what was uniquely interesting about their institution, or to recognize what might be visual. DFTV staff found that asking museum partners to take photos of their exhibits both helped DFTV staff to understand the institution and helped the museum partners to think visually about their resources.

Producers and museum staff at Explora both relate a challenging process arriving at a suitable investigation. While Explora members were somewhat disappointed that the content of the story was not tied to an on-going activity central to Explora’s offerings, they nevertheless were very pleased that the segment captured the open-ended, interactive nature of the experience they offered.

Producers found communicating their criteria for good television challenging, and museum staff concurred that it was sometimes difficult to understand what they wanted.

Interviews with each of the production staff suggest that they were trying to fulfill a number of complex factors in selecting a topic and creating a DFTV investigation. Producers emphasized the need for an investigation that could be performed by children, had visual appeal, could be shot in a short time period, and included on-site and off-site components that were easily accessible. If there were exhibits or animals involved, DFTV needed extended access. And they wanted investigations that were different from those presented in previous seasons.

From the start, several museums suggested investigations involving water testing, thinking this would satisfy the needs of the medium. However, this was a subject that DFTV producers had done previously, and they knew the difficulties of making this subject appealing.

The collaborative process proved the key to meeting the challenge of creating appropriate TV investigations across the wide variety of institutions included in Season VI.

In some cases, the specific mission of the institution, or the absence of specific activities for children gave the partners a clear direction for the story. For instance, the Southern Environmental Center's strong conservation mission provided a narrow focus to begin with, while the MIT museum, which largely serves adults, had a limited choice of programs for children. In others, the investigation was built on an activity that is already conducted with children on site.

In one case, a museum educator described her own institution as a "traditional natural history museum" and had to think creatively about using museum resources as a hook for hands-on inquiry. In contrast, an educator at a museum with hands-on table top activities had to rethink the center's resources to find an investigation which would provide a scale of activity that would be engaging on television.

Museum partners came with their own perspectives on what aspect of their institution or community they felt should be included, what constituted good science, and what they felt were the interesting topics to explore.

In some instances, museum partners were apprehensive of television's treatment of science and were concerned about the depth or quality of the information conveyed. For instance, educators at one museum were very concerned about showing the science as "glitzy" rather than going deep into the science. Others struggled with the amount of science content which could be covered in the story. One museum partner explained, "We were as educators probably going into too much detail and trying to get too many facts into it. When we talked to them and saw the program we realized we needed to simplify. Also a challenge was putting the science into terms of what a 13 year-old would say. Scientists had a hard time with that."

A few however had lingering concerns about the story development process, feeling that their concerns were not heeded, or continuing to wrestle with the decisions about what would make effective television. For instance, "I think at the beginning I thought there were better stories we could have told. But DFTV wanted to do some of the shooting in the field, and this was the best story in a nearby site. This was the best story for that limitation, and the inquiry side of it is great." One described the challenge as "reconciling good science and a solid learning activity with a need for good TV." And another, "They said, tell us what kind of science is important to

people in your region. The opening questions were really substantive and so we started responding to that... I felt that in short order our ideas were dismissed. They were concerned with form and weak on substance. They had preconceived notions about what makes pretty pictures and good TV and notion of science that is very formulaic, and the form was more important than the substance of what it was.”

The smaller institutions presented new challenges for production staff in how to visually represent the museums in the opening shots of the segment.

DFTV’s formula for representing museums generally included an opening sequence, referred to by DFTV producers as the “museum walkthrough,” which was explained as “having the kids running around and playing with every exhibit,” and “shooting a little of everything.” These smaller institutions did not lend themselves to this model. Some had only a limited number of exhibits or of child-appropriate exhibits. In other cases, establishing the name of the museum was a challenge, “Signage was trickier. These museums didn’t have huge metal, bright, neon signs. We had to find other ways of showing the museum,” explained a producer. In some cases they “showed more about the philosophy of the different museums, or how they fit into the community. The Mississippi museum had a lot about the biology of that area. It seemed less like the kind of place you go to spend time and more like a place to go to answer a question.” In a number of the stories, producers found a way of encapsulating the larger story of the museum into the investigation itself, by incorporating the museum’s overarching narrative of New Mexico through time, into the investigative story itself. “The kids went through the timeline of the museum, and then we introduce the new creature at the end.”

Museum partners stressed the need to be flexible in working with the crew.

“Yes. It felt like we had everything ready. They were just filming what we already do, which made it easier for us to be prepared. The hardest problem was when they changed their schedule and came when the vet wasn’t available,” and “The shoot was great fun. We were incredibly lucky with the weather. We knew we had to get outside to find live alligators, and hopefully a good many of them, and in December. The herpetologist said I can’t believe you promised them alligators in December. We were worried they weren’t going to see them that day. We did a lot of research as to where we were most likely to find them in December. I can’t think of any surprises, miscommunications, etc.... Everything went well. No problems. There were lots of challenges—logistics of doing outside shoots, and working around weather—just enough challenge to make it fun.”

How to handle the need to close off access to museums or park resources during shooting continued to be a challenge for some museums, though DFTV staff and their museum partners did find creative ways of handling this situation.

“What was challenging was coordinating the filming because it is a public area, and we had to close off that portion temporarily, and because it was a new exhibit everyone wanted to see it,” explained one museum staff member. Production staff felt that the best approach was to communicate with visitors that they were filming for PBS, as a way to “get people involved so they feel they are part of it,” and explained that for the last two shoots they had distributed flyers about the shoot, which were given to visitors when they purchased their tickets.

One of the national park partners noted that the DFTV staff was particularly sensitive to park concerns about conservation and how nature should be treated. He explained, “the mission in relation to how nature was treated was discussed before hand, but I didn’t have to ride it hard, which was hugely positive. That was really cool. Every time I had to take a stand they were right in line and that was huge. You get a lot of stuff from film crews who want to do things that are not very savory; but it was really nice that DFTV really respected our mission and our say on things.”

During editing, production staff were torn between allowing feedback from museum partners early in the process, which meant giving them greater opportunity to change things, and sticking to production schedules, by showing them the rough cut in a more finished state.

A concern for DFTV staff members was exactly when to solicit museum input during the editing process. While they welcomed feedback on the science content, they found that involving museum partners earlier in the editing process – particularly when the video was still in a very rough form – could open them up to more extensive changes, and make it more difficult to meet their production deadlines. However, getting museum feedback too late in the process meant corrections could be more difficult to make. According to the DFTV researcher, who facilitated the feedback process, this was the time she felt greatest tension between production staff who wanted to meet their deadlines and museums who wanted to shape the content.

Ultimately, museum partners were satisfied with the ability of production staff to respond to their editing suggestions. Partners said, “We had the opportunity to change things,” “Actually I never felt like it was too late. Every edit we had we passed on. They were able to change everything. They were really concerned to make sure we were satisfied,” and “They made rough cut changes as best they could. One was looking at recyclables. They had put into a category an item that could have been recycled. They couldn’t change the visual, but changed the voice over.”

Museum and production staff had different ideas about what kinds of museum behavior was appropriate to represent.

During the review of roughcuts, some of the institutions asked DFTV producers to remove footage that showed children acting in ways they felt were inappropriate for the museum. At least three of the partners raised concerns about images which DFTV staff thought just showed “kids having fun in the museum” and which museum partners felt showed inappropriate behavior for the museum, including running in the museum and handling the scientific equipment without appropriate care.

In two cases, the museums asked that narration be added to indicate when the child investigators were given special access in the facility. One museum partner explained, “We asked them to clarify that one of the young ladies is a museum volunteer who has been trained to handle our animals. So [they added narration so that the] public doesn’t think just anyone can walk in off the street and do that.”

Museum staff continued to recognize the professionalism of DFTV staff and appreciated their focus on science education, respect for the missions of the individual institution and ability to work with children.

Museum partners were impressed with the professionalism of the DFTV staff. They noted, “I gained a lot of respect for what they were doing. Each was comfortable with camera, logistics, scene selection—they know what they were doing.” And several museum partners commented on how well DFTV staff worked with the children. For instance, “they were great with the kids. They did not ignore or talk down to the kids. They included them during talk at lunch. They were great working with the kids.”

They were impressed as well with the science knowledge and concern for the science content. I was “impressed with the people working here, with the science and ability to convey it in a way that seemed meaningful. I guess it affirms that there are some things that are universal if you are planning a learning activity; e.g. getting kids involved in the learning materials.”

When asked about recommendations to future partners, museum contacts offered a wide range of advice concerning preparation for production.

Their comments included emphasizing the importance of “educating yourself about what will happen” and the value of the partner meeting in that regard, and being prepared for the amount of time involved during the shoot. They suggested having as much as possible planned out in advance regarding the science story, while still remaining flexible and open to scheduling and other changes. One museum educator recommended making sure the organization’s CEO is on board, so you “have the latitude to put the day-to-day aside to make it happen; and make sure the production team feels welcome and is accommodated.” Also recommended were informing both other staff and visitors about the shoot.

Communication strategies

Production staff felt they went into the season with a better understanding of the communication needs, had tools developed in the prior season they could use, and that the overall communication went more smoothly than in the past.

In most cases, the partnership relationship was initiated by the DFTV researcher, who made initial contact with the museum staff and sent DVDs with Season V *GPS* shows and a letter explaining the nature and goals of the collaboration. Although the science centers generally came back with a list of questions, such as the amount of time and input expected, who would be responsible for finding the child investigators, and what the script-writing roles would be, they were generally eager to participate, as recalled by the researcher. The researcher became the primary point-person for the relationship, in contrast to Season V where there were different points of contact within the production staff. Production staff felt this contributed to how easily “the DFTV idea caught on this year.”

DFTV staff felt they were better able to anticipate museum concerns and to understand museum bureaucracies this season. They had been through the process of doing DFTV shoots remotely and had experience working with museum professionals. They said, “I knew how best to communicate with museum staff, such as how much information to give them up front about the shoot, impact we would have during shoot. Every time I spoke to someone this year, I could say we need to be there one full day, and only one full day, and we will need certain exhibits turned off,” and “We were more organized, had documents that we created last year that we could send.” and that overall it went “smoother than last year. We had learned ‘museum speak’. We

were quicker to explain what it is we are trying to do, quicker to identify what could be expanded as a component.”

DFTV comments suggest that working with the smaller institutions eased some of the communication challenges experienced in Season V.

In Season V, DFTV staff generally found it necessary to include a long list of recipients in both educational and public relations departments on all emails. Through much of the production in Season VI, a single contact person on-site communicated with others in the museums, easing the complexity of communication for DFTV producers. Although they did continue to work with contacts in different departments in several institutions, in others they worked with just one contact.

Partners were satisfied with the information they received about the collaboration, and felt prepared going into the production process.

When asked to reflect on communication during the collaboration, most museum partners were happy with the overall experience. DFTV producers were described by museum partners as “very responsive,” “very professional,” and the experience as “very positive” with “no surprises.” Others said, “We talked all the time and they were always available.” “They were great; not calling us too much; it was the right amount. They outlined it and followed through. I was impressed with all operations and we were very appreciative of that. They did a nice job that way (in terms of communication). They are a very professional outfit.” and “We were informed up front and it happened the way they said it would.” Describing the communication before the shoot, another explained, “We had no problems, no egos; and the conference call was good. They emailed things and faxed materials” and another said, “It was a good partnership with lots of listening both ways. We are more than happy to hear what is and isn’t possible as far as the medium. That was good.”

Museum partners found the St. Paul Partner Meeting was successful for building familiarity between partners, and conveying important information about the collaboration.

Museum partners universally praised the value of the partner meeting held at TPT studios in St. Paul for making face-to-face contact with DFTV staff, conveying details of the partnership expectations, such as responsibilities and timetable, and providing reassurance about the process. They stressed the importance of delivering information in person even though it had been transmitted in other ways. Some typical comments about the meeting were, “They did a good job of letting us know what the process would be like when we went to the meeting in St. Paul. It really did help. It helped talking to some of the people that had been through the experience, so I felt prepared,” “I came away with a much better idea of what would happen. What kind of experience to expect; I found that very useful,” and “It was good to meet the other institutional people, and to meet the whole production staff and get a better concept of the philosophy of the program and their expectations of what they are doing.”

Additional comments suggest that the exposure to aspects of the production process were also valuable. Museum partners found it helpful learning about “the type of environments for filming, lighting, and sound requirements, how long it will take, and who is coming,” “It reinforced the idea that it doesn’t neatly work in terms of sequence of scenes shot, and factors such as weather

can impact shooting,” reminded them of the need to be flexible during shooting, and gave them ideas about how to minimize the impact on visitors during the shoot. Several partners noted the tour of the TPT studios as a highlight of the meeting. One described, “The tour of the studio was absolutely fascinating. I knew it was a big production, but I thought it was interesting. I actually think it made me more appreciative of the process that we went there and met people before the filming came here.” Production staff also noted that the meeting was valuable for beginning communication about story ideas.

A luncheon and DFTV session at the Association of Science and Technology Centers (ASTC) annual meeting provided another occasion for museums to learn about the process and network with their colleagues. A few museum educators noted this as another important opportunity to talk with some of the museums who had already gone through the shooting experience.

Outcomes

Segment satisfaction: representing museum experiences

Museums were pleased with the final products, including the science content and representation of their institutions.

Museum partners were very pleased with the segments produced at their institutions. A sample of their more general comments include, “I think it came out beautifully,” “Really well put together. Very insightful and professionally done,” and “DFTV can take a topic that is dry and make it interesting for various age groups—the city council members and general public at city hall were just as interested as my seven year old.”

Despite early concerns about capturing the spirit of the local institutions, most of the partners were very happy with how their institutions were represented. Some of their comments included, “I thought it showed the museum wonderfully,” “it struck just the right tone in terms of presenting the museum as an indoor/outdoor Exploratorium. I think one of the things that distinguishes us is the walking trails and water exhibits. The segment did an excellent job of knitting that together,” and “Everyone that has been able to view it here has been pleased—it did a really good job of portraying us.”

One partner noted that they had done a good job of including the visitor center despite its limited hands-on exhibits. And, from an institution with one of the toughest story development processes, “The segment did represent [the spirit of our institution]. There were concerns that a lot of previous episodes are [heavily] structured, have to have a chart and graph, and we are a more experienced-based place as opposed to content and data place. People here were concerned that it wasn’t going to be open-ended, but mostly that turned out okay. People were satisfied with the physical interaction representation.”

Museums noted the depiction of science inquiry as a strength of the segments shot on their locations, while some continued to struggle with the depth of content which was shown.

Museum partners were happy with the science content presented in their segments, and particularly the approach to the science. Some of these comments include, “from scientific methods standpoint, coming up with question and hypothesis was great—great job. And hopefully will captivate students that this is do-able. Definitely in terms of the inquiry method—

we do that with all of our education programs—it was an easy fit,” and “We are pleased with the science story. Strong science, good application, good connection with balloon and fiesta,” and “I thought it was really good and very positive. It encourages exploration and discovery.”

In some cases, they would have liked more of their institution included. For instance, “I would have liked to see more of the time at the museum,” “The only thing I wish had been done is more of a forest service presence,” “The seven minutes doesn't give enough time for the park or the center. It's more of a teaser,” and “I would love them to do an hour—but given those constraints, they did an excellent job,”

Others expressed mild disappointment at the depth of the science content. “[The producer] put in eight different views of kids interacting, but you don't see deep interactions. It is what it is. Knowing what it is, it's really good,” and “Feel good about the way it came out in the end. It just could have had more in it—more substantial things,” and one who would have liked the segment to conclude differently, “In the actual segment they don't really come to a conclusion—not sure that there is one. I would have liked to see some sort of wrap-up that is lacking.” And in one case, some of the museum staff still felt they compromised on content for the production. “They were a little too concerned with whether fourteen year olds are going to think this is cool, and to meet their formulaic aspects of data and graphing.”

Potential uses of the segment

Museum staff looked forward to using their segments for both educational and marketing ends. For educational purposes, some saw the value of the segment as illuminating content, while others focused on the inquiry process.

Museums were looking forward to using the segment in their institutions, and saw potential value for a number of audiences. For instance, one partner said she asked for multiple copies—“One to exhibits, to education, one to marketing, one to library, and I can use it if we go for funding.” In a few cases, museum partners described already using it when visitors arrived at the institution, when attentions were lagging with tour groups, or showing it in the museum's theater as a continuous feed. Others shared ideas of how they might use it. Most commonly mentioned were showing it in the theater, on displays around the institution, and with longer educational programming such as summer camps, winter break programs, and sleepovers. One noted that the short length and inclusion of local kids might make the segment an appealing addition to their theater offerings.

Several were looking to use the video as an introduction to a content area. For instance, one educator was interested in creating an activity kit on glaciers that would include the video, and another said, “We will use it for showcasing the museum and for education—we deal with alligators a lot, so its very usable for us.” Another noted that the segment had been based on an existing exhibit, and thus had several immediate uses, e.g. “Right now we have the same bones [from the segment] on those docent carts, and we can have kids do it. Summer camps will watch the segments and do it. It's repeatable.”

Others were interested in using the segments because of the focus on the scientific method, for instance, “I could see developing a whole four-day summer program watching the video, developing a question, and doing it. We don't presently do anything focused on the scientific

method, or do anything in which we have the kids develop the questions.” Another felt they could use it as an example of inquiry during a teacher in-service that focuses on inquiry.

In a couple of cases, because the show focused on a topic not in the museum, or because of a perception that people are not interested in watching television at a museum, partners were still trying to understand how they might use it. For instance, an educator at one institution that has not traditionally used television was thinking creatively how to do so, and asking, “Is it possible to take a TV episode and integrate it into programming in a meaningful way? Can the TV show help make the experience richer?”

Participation in developing the outreach activities and the companion guide for educators was seen as expanding practices and ways of thinking about child-centered activities by some, and an opportunity to explore new content areas for others.

Partners explained that they enjoyed contributing to the curriculum guide and “felt very involved,” and some found the experience challenging. For some, the collaboration gave them to opportunity to develop materials related to a new content area that they would then be able to use in other contexts. For instance, one explained that “we hope to use that activity in some of our programming next summer. With the premiere, we hope to have a special event weekend with a teacher workshop, and take this topic and move forward with it in as many different ways and program models as possible.” They described the challenging aspects as follows, “Developing the materials was more challenging than expected. We do lots of hands-on, out in the field stuff. Trying to get it to fit into something more concise and putting it into words was the fun part,” “is it possible to write something, e.g. four-page lesson plan, where you can really capture how to do the activity, but the essence of what good open-ended inquiry is,” and another realized that DFTV pushed her to develop a child-centered activity in contrast to facilitator-led activities, and that it was one she could use again.

At the time of the final interviews, museum partners were still waiting to see the impact of the national broadcast, but they were nevertheless very enthusiastic about the value of the publicity.

Inclusion in a national broadcast was the most important outcome for some, “We got some fantastic public relations for the forest service and Mendenhall glacier center. I can imagine that people will want to come up here and do these cool things. It is a positive image kind of PR.” and “From a marketing perspective, it was a great opportunity to get national exposure for our institution and the kinds of experiences we offer visitors.... Because it identifies us as an important learning center regionally, and reinforces our educational philosophy. We are interested in promoting and showing the segment.” However, one partner emphasized the importance of national broadcast, but also noted, “I can’t ever figure out what affects visitorship. [But it] would be interesting to find out if people start asking questions based on what they saw on DFTV,” and continued that the importance was in elevating the institution, “Our institution is on the cusp of realizing we have some national relevance and DFTV is proof,” noting that the news media had shown up for the casting call, “It generated more buzz than a new exhibit.”

Others focused on the importance of informing other educators of what they were doing, and networking with other institutions. “It allowed us to get the word out there about Explora. Publicity—not just for those who see the show, but those we worked with. It was good meeting people in the community, not only with DFTV, but from other science centers.” Several looked

to showing it at board or funder meetings, to remind people of the importance of families and science, or to impress them with the institutions' inclusion in a national program.

Museum partners saw the involvement of local PBS stations in the broadcast events as an important opportunity for relationship building. For some, collaboration with their local station had begun even earlier in the production process, and some were already discussing possible future collaborations.

A total of twelve premiere parties were held involving all fourteen institutions. Events varied in how elaborate or simple they were. In some cases, the premiere was the focus of the event, while in other cases the screening was added on to an existing event, such as a local science festival or evening series. Institutions generally provided refreshments, hands-on activities and DFTV giveaways. Some gave away free tickets to underserved audiences to attend. In several cases, the child investigators arrived by limousine. Turnout ranged from 50 to 300, and in at least one case, visitors came from as far as 200 miles away.

Seven local PBS stations participated in the final premiere event. A few of the institutions had an existing relationship with their local PBS station, while others made contact earlier in the season and the station had either hosted or promoted the casting event, or provided publicity about the shoot at the local institution. One museum partner explained, "It was a nice bridge building exercise with VT Public TV... VT Public TV enjoyed getting out to another area.... It provided a culminating event for the kids and families with whom we worked, and opportunity to connect with local PBS."

In a few cases, in which the local PBS station was not yet broadcasting the TV series, the institution staged an event independently. For instance, one site screened the DFTV episode during their monthly lecture series program and was pleased because the events had previously been targeted for adults, and this was child and family oriented. "I was surprised that even a bunch of adults were coming, even though it was geared towards kids. Gearing the programs more towards families in the future could be a success."

A few museums had either already begun or were discussing possible future collaborations with the local stations. At one site, the museum had already hosted a film produced by the local PBS station, which the museum partner attributed to the DFTV collaboration. And they were discussing other film projects and planned to partner on grant-writing (for collaborative projects). "I've already talked with the PBS public outreach coordinator. They do family days at sites around VT and we talked about being a site for that. We've talked about keeping the partnership going. This is the first chance we've had to build those kind of relationships."

Others were looking towards other projects together. "We have had contact with them [the local station] in the past. It worked in making the relationship richer. Over time it looks as if the relationship will become more complex, more varied, and certainly DFTV has contributed to that. We know that they are interested in doing more taping here with the locally produced Science Café and that is certainly something that we didn't see any sign of before DFTV." And in other cases, the museum partners felt like it had opened the door to discussions. For instance, "No, we haven't talked about working with KTOO in other ways. I have a lot of projects—dream projects—so now I know who to call."

Cross-industry learning

Museum Staff Learning

Museum partners recalled a range of things they learned about television production as a result of the collaboration, from the planning and production details, to the concerns for creating engaging television.

Museum partners mentioned learning about pre-production planning, need for multiple takes quantity and quality of information that can be conveyed in a short segment, importance of visual appeal, and challenges of working with children. For some, the experience served as an overall primer about television production. “I learned about television production [nothing in particular], just any exposure is helpful, for instance seeing the collaboration between producers, camera, sound guy; how it works and is put together.” And “I learned about making a TV show and I watch TV differently now. Oh, how many takes, did it take?,” and “I learned more from the experience of being there in the field, and watching the whole production, creating a story, how much to shoot. I learned how producers think, about piecing it together in a way that young kids think, watching those kids get so excited about the program, and thinking about how they took all that footage and made it into a seven-minute story.”

Others noted specific things they learned from one or another phase of production. For instance, one described what he had learned about the planning phase. “I learned that it is a long complicated process. And you have to have an idea of what your question and answer will be, and I hate to say it, a little bit of it was staged. You have to anticipate the questions in order to film it and present it to the public. It makes you think about all the aspects of it—and to fit into the format and time constraints and what’s physically possible for kids to do.”

Several noted that they learned something about the quantity and quality of information that could be presented in a short television segment. Some felt they had to scale back the content and detail from their original plans, while others were surprised at how much content they were able to include. For instance, “At first scientists were discouraged that we’d only have nine minutes, and then were surprised. I showed them the 30 second spots we’ve done, so people realized we can teach something in that time.”

Shooting provided another experience. “Throughout the filming process I was reminded of the concern with the visual appeal, pacing, etc. I was reminded of the medium and need to keep the interest because they will leave—flip channels.” Another was struck by “how much video they shot for one little segment, and how much time spent for short amount of time on camera. It was interesting dealing with perceptions of 10-12 year old kids; some crying about not wanting to be on camera, or have microphone in face, or wanting to be on camera.” One applied this particularly to understanding what about their institution could be filmed, “I learned a little bit of what producers do and about filming and what angles and sounds are needed. I now have a better idea of where they could film certain things, where to go if they needed to have quiet, and where we can now find that in the museum. I have more of an awareness of the time constraints they have. They have tight schedules.”

One of the off-site content experts had not previously considered the needs of developing science content for children or for the television medium. He said, “It made me think about where would I put the balance between being scientific and entertaining if I had to reach out to this age group.”

Several museum partners were able to see ways in which this learning would impact ongoing or future involvements with media collaborations.

“The experience will help me with other media groups that come out. I have a little better understanding of how they operate. It’s always good to learn new things,” explained one. Another museum educator was impressed by the high level of production and found it interesting to reflect on the other productions with which he’s been involved. “I look at it from the perspective of how much money I have to raise for the films I make with the local PBS station. It’s interesting to see what you get out of that, what kind of production level and reach. For me it has been a great opportunity to tag along and watch what they do. [I realize now that] we operate on a really small scale. The size of the crew isn’t different; it’s the behind the scenes staff who are dedicated to the support of the project—they have larger behind the scenes support. It’s been a nice window of what’s required... [Now] I get NSF’s perspective on what it should take to get it done. That’s a valuable experience. [For our television station] it also affirmed the needs of high production value. It crystallized some of the things we didn’t know.” And for an educator who had recently become the new media center coordinator, she felt understanding the process behind production would be immediately valuable for her work.

The experience broadened partners’ openness to and understanding of the value of media as a means of science education, and several saw the value of the collaboration for ongoing media projects in their institutions.

Several were inspired by DFTV as a model for how media could be used in science education. For instance, “I didn’t realize how strong it could be. So little [television] presents the scientific method and presents kids doing real science. It was eye-opening. You could ask questions and do it on film. Showing kids doing science and the potential of that turning on kids is tremendous,” and “It opened my eyes in terms of what else is out there, what others are doing in terms of television shows, and that people really do want to get children more interested in science.” Some of these even admitted to being initially resistant to using television for educational purposes, e.g. “we tend to de-emphasize media. We have a place you can make your own animated film, but computer monitors displaying information are not prominent here—same with movies. That’s a conscious choice.” And while one staff member at this institution was inspired by the idea of having media in which they were featured, another recognized the affective value of the media, e.g. “I guess I am more impressed than I was before about how interesting and engaging they can make science...Kids watching wouldn’t necessarily have learned all that, but maybe they would be more engaged and interested to do science later. And if they really do the activities in the curriculum guide then it is a powerful experience.” Several also reflected on the specific abilities of what television can do in the way of science education. One said that DFTV’s notion of interactivity challenged her own ideas, “This is minds-on that encourages hands-on in another venue,” while another recognized the flexibility of television in creating new learning experiences, compared to the difficulty in changing museum experiences.

Another felt this experience built on an on-going conversation about bringing short media pieces into their inquiry experiences and that the collaboration experience would be valuable in that context. “We’ve been thinking about this for the last couple of years. We want to focus on good observations and close-up personal experience. That’s what I want people to do, but maybe there is a role for possible quick five-minute slide shows, or video, or tie in frog songs. Should I bring my iPod into the classroom? I am doing that now, and that is a bit of a shift. Kids have enough

screen time, so we try to avoid it, but there may be times when it is okay. So this—how can I bring in video pieces that make sense, that are a launching point for investigation, but not as culmination, but to introduce a concept and idea, whet an appetite, etc.” Along these lines, one educator was still interested in learning “more about using television with the museum. I wanted to learn about teaching with television.”

At least three of the museum partners mentioned that their institutions were already committed to new media walls or other uses of media. One explained, “The most important outcome [of the collaboration] for me personally was the whole experience of learning how to use a facet of informal education that is new to me and exciting and appealing to people. Knowing more about using TV and media as a tool is super-important to me. So learning the whole process has been really valuable.” Another explained, that the museum is “designing more media content into our upcoming halls, launching an exhibit on the Triassic that will include more media in it; launching in 2010 an exhibit that will have significantly more electronic media. The value of the collaboration has been seeing that it is definitely a useful tool. We are also looking at ways to interact with visitors with podcasts or webcasts, and need to figure out infrastructure issues. Being involved with DFTV has definitely helped promote that cause within the institution, because that involvement has been the leading edge of this process—timing wise.” Another said, “We talked about our endangered species exhibit and we would like to include more information, so video would be a fun way to get more information in to the exhibit without looking cluttered or crowded.”

Museum partners reflected as well on other aspects of their educational practices or offerings for the public as a result of the collaboration. Many of their comments touched on how they could integrate inquiry into the educational offerings or provide a broader cycle of inquiry.

The majority felt that the experience “reinforced...that inquiry is the right way to teach science,” or was consistent with what they are already doing, in terms of both inquiry and the connections between the museum and the real world. Others said, “I’m fairly sophisticated about inquiry—I know that already,” and another, “In terms of science education, they aren’t doing anything that we aren’t doing. You can tell they are very experienced; the kinds of educator’s guides, and philosophy are all familiar to us. We strive for doing something away from the museum or at our environmental education center or continue and visit our website.”

Despite these sorts of responses, many pointed to aspects of DFTV that did expand their thinking about their educational offerings. One of the national park partners stated, “It reinforced my ideas that I want to include more science in our programs—in the park and on electronic field trips. We have a lot of science content already, but [it is difficult] getting students to do hands-on research.” And some realized that they don’t address the inquiry process directly, “Just realizing as a science museum, we don’t teach the kids about the scientific method enough. We don’t do enough of that here. It would be cool to try and develop inquiry rather than just give the answers,” and “we could do a better job creating inquiry-type experiences. I think of staff training, and then enabling staff to train volunteers who work with kids in a variety of different ways. There are a couple of segments that showed how to do that very well. It was very learner directed...It validates a thought that we’ve had about how to better implement inquiry into museum programming.”

Others were inspired to think about other aspects of inquiry that they don't currently teach. For instance, one educator pointed to DFTV's inclusion of "kids making a bar graph," and described this as "pieces of the inquiry process that we don't usually focus on here." Another partner reflected on the full inquiry cycle presented in DFTV investigations, noting that it would be good to create investigations that "use real data, and interpret, analyze and show it, which in a lot of science museum work we don't do enough of."

In contrast, members of one museum felt the experience highlighted the uniqueness of the open-ended experiences offered at their museum.

Others were challenged to think about their target audiences, and the extent to which they addressed children and informal audiences, in particular.

In several cases, museum staff shared insights about their own institutions which occurred as a result of the collaboration. One national park participant said, "One of the things I learned is that our exhibits are not geared toward kids and they are kinda crappy. It's not exciting for a kid to look at. That was a great realization. It has caused me to start working on some kids programs. We also did a survey in Mt Rainier realizing that kids are half of our visitation. It's interesting that we don't give them anything, but we expect them to become preservationists. It was a good eye-opener." Another noted, "It was interesting that they were focused on informal audience, and not just teachers. We are moving towards focusing on kids and families. We don't do any citizen science, but it is an area we are moving towards."

DFTV Staff Learning

DFTV producers learned about museum education and expanded their ideas about how to shape inquiry experiences on television.

In addition to much of the strategic knowledge they gained from collaborating with museum partners, DFTV producers noted a number of ways in which they learned about museum education more broadly. For instance one said, "I've always had a much more traditional view of science education. What surprised me was that a lot of the camps that these museums have seem to be kind of open, and the kids—if they had a certain interest—the science center would encourage that. It's interesting because I never saw that in school. It's engaging for the kids."

Another explained, "I didn't know much about science centers. I used to work in news and the local station here did a lot with SMM [The Science Museum of Minnesota]. I learned that there is a wide range, but we also worked with an aquarium and typical ones and atypical ones and visitor centers. I didn't realize how many scientists work with these science centers. There's a lot of creative people and a lot of good content for TV, it's just making sure that it's brought out. I think it's sad because a lot of people just think of them as a place for a field trip. I was amazed that every science center was changing, with new construction or exhibits. Also, there is this whole world of interpretation. You can do science and do interpretation—not just working with data. For science education—this is a field you can be creative in." And for some, the experiences this year provided a more intimate view of the museum world. "One thing I learned more this year is that each museum has its own personality and its own things that are important to them and its own special quality that it brings to the world and if you can get a sense of what that is, it is my responsibility to get that across in the segment in a way."

The DFTV model continued to evolve throughout the production of the *GPS* series. Producers found ways of including adults in the segments in a way that authentically represented their role in supporting children’s investigations, while still highlighting children as the lead investigators.

Museum partners were pleased with the inclusion of staff in a way that reflected how they support learning. As one producer explained, “It felt like the research from last year gave us permission to include adults. The child investigators need the permission [to shoot what they do], and zoos and aquariums want audiences to know that they are receiving special permission, so [including that process] made it more believable. To do special things or even move investigation along included consulting adults and experts, not to do it for you, but to provide information. Almost every show has some adult...” A park service partner noted, “the Park Service likes to be seen in our uniforms in a national park, but instead kids were the stars. But they did an excellent job of balancing that. Something came up that kids didn’t know and they asked [the ranger], and then they were off. That was one thing that was cool that I hope kids will do—feel comfortable going to the adult and asking for help. [Including this interaction was a way of saying] that the door is open. She answered the question pleasantly, and then they were on their way. It was a smooth way to incorporate adults. They used the ranger for what we are here for. I really want our rangers to be approachable to kids.”

Production staff were more open to selecting children with authentic science interest, rather than acting experience, in their casting of child investigators.

During the last season’s production, there were a few cases in which museum partners expected that children associated with the institution would be selected for the DFTV segments. This had become a source of tension between museum partners and DFTV staff, who prioritized acting backgrounds. In contrast, during Season VI, one producer explained, “we were much more focused on kids that might already be adventurous or looking for extracurricular science activities. Maybe the thought was we would be getting kids that are intrinsically curious, and they’d be more interesting to see on TV.” Another explained her rationale, stating “There are cases where kids are just such good performers or naturally curious that it just works, but I actually positively believe there is zero substitute for interest in the subject and it is infectious and it is what you want kids to see.” At least two episodes featured children with a prior relationship to the museum, and in one case, producers noted that, as a junior animal keeper, the child was able to handle the animals and provide access for DFTV crew that would not otherwise have been available. One of the producers noted further, that “having that special relationship made it more believable.”

The relationship of different locations and their roles in the investigation stories changed over the two seasons.

In the original *GPS* model, developed in Season V, each investigation typically began inside a science center and continued with a second part of the investigation outside. Increasingly, producers allowed themselves to improvise on this model, most often including the science center as a resource or jumping off point for an investigation in a school, field work site, or national forest or park. Inspiration for the investigation could be triggered in any of these sites as well. So, as one producer explained about the Garbology story, “they get inspired by something in their everyday life, go to recycling plant, and use the museum as a learning tool, and then go

and do their investigation,” and a national forest partner said, “We would rather people be outside than in our museum. We are different than the other museums. We are using it as a springboard to get people outside.” Nevertheless, one of the producers still felt that they had focused too much on the exhibits in visitor centers. “We should have said that the park is the experience. We don’t necessarily need the museum, but that was the model, and they got excited about that.” As the science producer noted, there was a conscious relaxing of the DFTV model. “We allowed ourselves to stray without calling it a problem anymore.”

Production staff found working with the smaller museums presented fewer communication challenges and they found the staff more available to participate in the collaboration.

Production staff suggested that the smaller science centers were easier to work with because they made a greater investment in the collaboration. DFTV staff noted that throughout the process, museum directors were either directly involved themselves, had a greater role in handpicking who of their staff would be involved, or just generally that more senior staff were involved in each phase of the collaboration. “It was such a big deal for some of these museums to be working with us, it was easy for us to ask for things. Last year, we had a sense they [had the attitude that they] were doing okay without the national show, and what did they need DFTV for? This year, they verbally expressed that it was big deal. The [local] press was interested in the fact that we were a national show coming to this museum.” The result was that “It seemed like all of them really wanted to work with us. They were on board with the project and the mission.”

Another producer explained, “It was easier for us, because smaller museums had a bigger investment, and most had more time, and were willing to sort of spend the time that was needed to come up with ideas, let us in, and interrupt them for three days. So we got a lot better response and partnerships and working with them. They saw the value of exposure and the quality of the stuff we did last year. They were more willing to trust us,” though he wondered whether this was because of the size of the institution or because they now had a proven concept.

Another producer noted that he was surprised that despite the small size of the institutions, the Season VI partners were eager to help out. In contrast, it had been the big institutions the previous season that complained of small staff or a lack of time and hesitated to take on tasks. Describing the partnerships in Season VI, he said, “Each individual liaison was up to the armpits in preproduction and production process.” Producers got excellent support from people on the ground, and even the “parents and kids who were featured thought it was such a cool thing.”

Working with the smaller institutions meant production questions could be quickly answered, without going through several departments. One producer explained, it was “much easier this year. It was easier to get a hold of the partners, and a more open and less formal process. If we had any questions, we could just call up, ask and get an answer. Last year, you had to talk to people in PR and education, etc. The siloing effect made it difficult to get straight answers and quick answers. Last year, we would send emails to everyone in the conversation and who knows when you would get an answer. This year, just pick up the phone and ask one person.” And another said, “I didn’t have to worry about whether their boss knows when there is a change,” and she realized only late in the production that in one case she’d been working all along with the museum director.

And even when both education and public relations personnel were involved throughout the process, DFTV staff felt they had a better understanding of who to go to for what; “They knew what their boundaries were within the museum. We knew what to ask of which department.” Another production person explained, “Small museums—(compared to last year) more hands on, more communal (everybody knows everybody), and you get a little more free reign.”

Over the course of two seasons, the DFTV model evolved to a more authentic representation of museum experiences and learning.

Over the course of the two seasons, the DFTV model evolved in a number of significant ways. In the Season V baseline interviews, the DFTV model was described as procedural, and producers themselves noted a rigid framework in which an investigation would begin in a science center and then move outside for a second phase. They also began with a fairly rigid formula for how to best represent the science center, including an overview of the institution as a whole and then a detailed view through the investigation. All of these format choices evolved throughout the two seasons, in part through the growing knowledge of and experience of the producers who learned about museums, museum education, and inquiry, and in part from the feedback of museum staff.

Learning about how to improve the collaborations was integral to the production process and unfolded throughout the two seasons of DFTV. For instance, through the process of collaboration, the staff grew more sensitive to a variety of museum culture issues, particularly in the area of museum representation. In previous seasons the DFTV model avoided including adults on screen, despite their actual influence in shaping and supervising investigations and providing transport and other logistics. However, in the first year of the collaboration, museum educators stressed the importance of facilitators and other museum staff in creating opportunities for inquiry, and children interviewed in evaluations were surprised to see the child investigators running around museums unsupervised, and conducting a range of activities without the help or guidance of adults. In Season VI, the DFTV crew successfully integrated adults into the investigations in a way, that did not compromise the prominent role of the child investigators.

From the museum perspective, the process offered alternative ideas about what was important about representing their institution and mission. Ultimately the DFTV format evolved, as the production staff became more comfortable in accommodating the unique features and practices of the partner institutions.

Summary of Findings

What Makes for a Successful Collaboration?

Recognizing a shared mission

- Museum partners saw participating in the DFTV collaboration as an opportunity to extend their science education and conservation missions, which they recognized were shared by DFTV.
- Museum partners saw collaboration with a nationally broadcast program as an opportunity to boost their reputations within their professional and local communities.
- The opportunity was seen as a unique opportunity for national exposure which might impact visitorship.
- The opportunity for national media exposure that highlighted their educational missions and offerings was a perceived benefit of the collaboration.
- Partners recognized the DFTV opportunity as a rare chance to provide exposure for science centers, and to do so in a way that would represent science centers as fun destinations for children. They also came into the collaboration with clear ideas about how their institution and/or community would be represented.
- Partners recognized the DFTV collaboration as an opportunity to reach out to tween audiences.

Establishing clear roles and responsibilities

- DFTV staff found that there was a high level of museum engagement, with a greater involvement of executive directors and other senior staff than with the larger institutions included in the Season V partnerships.
- Production staff indicated that they were able to apply knowledge gained from Season V about communicating with museums about the collaboration roles and responsibilities.
- Museum partners were mixed on how prepared they felt. While some felt well-prepared others were anxious about what was expected of them going into the production process.
- Museum staff noted that this collaboration was different than most of their earlier media collaborations in that they had greater input into the content of the video segment than in other productions.
- They embraced their roles as content experts and felt their opinions and concerns were respected throughout the production process.
- During the shoot itself, DFTV and some museum staff recognized that supporting the production crew facilitated their production experience.
- Museum partners were asked to host the casting calls. Most were happy to do so, though it was a challenge for some.
- Each partner institution received a mini-grant of approximately \$8000 to cover staff costs. Museum partners appreciated the mini-grant as both helping covering their expenses and an important gesture recognizing the considerable effort on the part of museum staff.

Aligning work cultures and expectations

- DFTV staff producers explained that they were prepared for the different pacing and turnaround time of the museum culture, and made an effort to be patient and understanding in working with partners.
- Production and museum staff noted particularly the time leading up to the shoot and the shoot itself as requiring a high degree of commitment and intensity on the part of museum staff.
- Delaying finalization of the script until just before shooting was difficult for some of the museum partners.
- Museum staff were occasionally frustrated by production staff unavailability, although they noted they had been warned of this.
- Among the most common advice given by museum partners for future participants was to be aware of the intensity of the involvement in the time leading up to and during the shoot.

Production challenges

- Recognizing the challenges in Season V of focusing on a museum exhibit as the basis for an investigation, DFTV staff in Season VI asked museums for a more general description of the visitor experience at their institution. In some cases this approach helped capture the spirit of the institution.
- Producers found communicating their criteria for good television challenging, and museum staff concurred that it was sometimes difficult to understand what they wanted.
- The collaborative process proved the key to meeting the challenge of creating appropriate TV investigations across the wide variety of institutions included in Season VI.
- Museum partners came with their own perspectives on what aspect of their institution or community they felt should be included, what constituted good science, and what they felt were the interesting topics to explore.
- The smaller institutions presented new challenges for production staff in how to visually represent the museums in the opening shots of the segment.
- Museum partners stressed the need to be flexible in working with the crew.
- How to handle the need to close off access to museums or park resources during shooting continued to be a challenge for some museums, though DFTV staff and their museum partners did find creative ways of handling this situation.
- During editing, production staff were torn between allowing feedback from museum partners early in the process, which meant giving them greater opportunity to change things, and sticking to production schedules, by showing them the rough cut in a more finished state.
- Museum and production staff had different ideas about what kinds of museum behavior was appropriate to represent.
- Museum staff continued to recognize the professionalism of DFTV staff and appreciated their focus on science education, respect for the missions of the individual institution and ability to work with children.
- When asked about recommendations to future partners, museum contacts offered a wide range of advice concerning preparation for production.

Communication strategies

- Production staff felt they went into the season with a better understanding of the communication needs, had tools developed in the prior season they could use, and that the overall communication went more smoothly than in the past.
- DFTV comments suggest that working with the smaller institutions eased some of the communication challenges experienced in Season V.
- Partners were satisfied with the information they received about the collaboration, and felt prepared going into the production process.
- Museum partners found the St. Paul Partner Meeting was successful for building familiarity between partners, and conveying important information about the collaboration.

Outcomes

Segment satisfaction: representing museum experiences

- Museums were pleased with the final products, including the science content and representation of their institutions.
- Museums noted the depiction of science inquiry as a strength of the segments shot on their locations, while some continued to struggle with the depth of content which was shown.

Potential uses of the segment

- Museum staff looked forward to using their segments for both educational and marketing ends. For educational purposes, some saw the value of the segment as illuminating content, while others focused on the inquiry process.
- Participation in developing the outreach activities and the companion guide for educators was seen as expanding practices and ways of thinking about child-centered activities by some, and an opportunity to explore new content areas for others.
- At the time of the final interviews, museum partners were still waiting to see the impact of the national broadcast, but they were nevertheless very enthusiastic about the value of the publicity.
- Museum partners saw the involvement of local PBS stations in the broadcast events as an important opportunity for relationship building. For some, collaboration with their local station had begun even earlier in the production process, and some were already discussing possible future collaborations.

Cross-industry learning

Museum Staff Learning

- Museum partners recalled a range of things they learned about television production as a result of the collaboration, from the planning and production details, to the concerns for creating engaging television.

- Several museum partners were able to see ways in which this learning would impact ongoing or future involvements with media collaborations.
- The experience broadened partners' openness to and understanding of the value of media as a means of science education, and several saw the value of the collaboration for ongoing media projects in their institutions.
- Museum partners reflected as well on other aspects of their educational practices or offerings for the public as a result of the collaboration. Many of their comments touched on how they could integrate inquiry into the educational offerings or provide a broader cycle of inquiry.
- Others were challenged to think about their target audiences, and the extent to which they addressed children and informal audiences, in particular.

DFTV Staff Learning

- DFTV producers learned about museum education and expanded their ideas about how to shape inquiry experiences on television.
- The DFTV model continued to evolve throughout the production of the *GPS* series. Producers found ways of including adults in the segments in a way that authentically represented their role in supporting children's investigations, while still highlighting children as the lead investigators.
- Production staff were more open to selecting children with authentic science interest, rather than acting experience, in their casting of child investigators.
- The relationship of different locations and their roles in the investigation stories changed over the two seasons.
- Production staff found working with the smaller museums presented fewer communication challenges and that the staff more available to participate in the collaboration.
- Over the course of two seasons, the DFTV model evolved to a more authentic representation of museum experiences and learning.

Discussion

The collaboration study examined 29 different collaborations between DFTV's relatively small content and production staff and the staff at 29 different informal learning institutions. Conducted over two seasons of the show's production, the study involved two distinct phases. During the first phase of study, Season V, investigation focused on the fifteen collaborations between DFTV and the large informal learning institutions involved in the production of the Season V series. The second phase of study, which is documented in this report, examined the collaborations between fourteen small and mid-sized informal learning institutions and DFTV staff during the production of Season VI. Evaluation during both phases focused on the success of the project in engaging the two sets of professionals and their resources in the production of DFTV video segments, and documents the professional development outcomes, particularly the ways in which informal science educators working in television and museums expand their understandings and practices in science education.

The collaboration process and potential for professional development outcomes for partners in the two industries varied. The "one-to-many" structure of the project allowed DFTV staff members to use the experience gained in one collaboration to inform the next collaboration, and learning from one season was applied to the next season's collaborations. In contrast, each of the museum partners experienced the collaboration as a one-time event, although the second set of participants benefitted to some extent from the experiences of the first season, through information conveyed at a partner meeting and an ASTC session, for those who attended.

DFTV staff began the season having worked through fifteen earlier collaborations, albeit with much larger informal learning institutions. They started the season with a much greater understanding of the work flow and bureaucracies of science museums, as well as communication strategies. They also used the print and DVD resources that had been developed in the first season to support their communication. Nevertheless the Season VI institutions and collaborators presented new challenges and opportunities.

The Season VI museums represented a wider range of institutions than in the previous season. They included university and state museums, collections-based natural history museums, hands-on science centers, and visitor centers in national forests and parks. They included institutions focused on a single theme, such as environmental conservation and technology, as well as those with broader missions, such as aquariums, natural history museums, and interactive science centers. And they varied in their offerings. Visitor centers tended to have more limited exhibitry than the museums, while some of the smaller interactive centers offered more table-top activities than traditional exhibits. Consistent with their larger cousins, the Season VI museum partners came into the collaboration with a range of experience and understanding of science education and inquiry-based learning. These unique science orientations and resources shaped, in different ways, the collaboration process.

DFTV producers started Season VI with a wealth of experience related to the challenges of staging DFTV segments in locations outside of their home base, developing appropriate and effective investigative stories at science centers, and working with museum bureaucracies. They had developed specific strategies for communicating with museums, including assigning a dedicated staff member who fostered the partner relations in the early stages, and a more nuanced view of how to represent learning institutions in DFTV investigation segments. From a

focus primarily on museum exhibits in Season V, the production of Season VI more fully explored other features of the partner institutions, e.g. through a presentation of the mission, such as conservation or open-ended inquiry, and/or through the natural resources as an opportunity for field study, as in the videos produced with the national forests and parks. The institutions and exhibits themselves were integrated into the investigations in a range of ways, designed in each case, to best serve the topic and investigation appropriate to that institution. In some cases the entire investigation was conducted at the institution, while in others, the institution provided a jumping off point or resource for an investigation conducted elsewhere. In all, however, the science centers were positively linked with children engaged in pursuing science investigations while having fun.

The collaboration resulted in the successful co-production of fourteen segments during Season VI. Echoing the praises of the prior year, most museum partners were delighted with the degree of input into the production process they were afforded, noting that it was rare to be given the opportunity for such involvement on a media project. Museum partners were pleased with the final segments and looked forward to using them for educational purposes, such as introducing visitors to their center and its offerings or providing specific content instruction. They also looked forward to using the videos for internal and external marketing purposes, such as sharing with board members, and with funders and others beyond their institutions. In most cases, the small institutions felt honored to participate in a high-profile national production and were proud of the final product. While national exposure was important on its own, even more significant was the presentation of the institution's educational work. The latter was especially true for the visitor centers, who were less interested in increasing visitation than in showcasing their educational activities.

Overall, DFTV staff found partnering with the smaller institutions easier. Working in some cases with the executive director of an institution, and in others with a closely-knit staff, they found that they invested less time and fewer resources in communication and decision-making. In addition, they did not experience the sort of conflict between public relations and educational missions which they had confronted when working with the larger institutions. The smaller centers immediately understood the educational mission of the collaboration and viewed the public relations benefits as consistent with this. They were, in most cases, flexible about what aspect of their institution would be featured, and embraced DFTV's emphasis on science inquiry.

The collaboration provided a professional development opportunity for museum partners. They reported valuing what they had learned about media production, and said the collaboration would prepare them for future media collaborations, as well as the expanding role of media within their institutions. They wrestled with questions about how best to use television or media to convey science, and the type and quantity of science content which is best conveyed through television. The experience also provoked reflection on other aspects of their work, including how they teach inquiry in their institutions, and how they interact with and serve young audiences. They appreciated as well the opportunity to network with colleagues at other institutions through the DFTV planning process and the ASTC sessions.

Culminating events, celebrating the premiere of the DFTV segments for public audiences, provided an opportunity for the partnering institutions to build relationships with local PBS stations. All of the partner institutions participated in events, involving seven PBS stations. Museums felt the connections made with PBS stations were an important benefit of the project, and some had either already initiated or were talking to their local stations about further

collaborations. This was a component of the project that was particularly compelling for the small and mid-sized institutions in Season VI.

DFTV developed an increasingly nuanced representation of museums and museum learning over the two seasons. The inclusion of adults in a way that authentically reflected their role in supporting children's learning and investigations was noted by both DFTV and museum staff. Interviews with DFTV staff indicated improvement in their own understanding of and engagement with science education issues, such as how to model scientific investigations that feel accessible to children, how to treat "exotic" locations or activities, and how to create investigations that could be reproduced at home.

Consistent with findings from phase one, collaboration participants had to meet a number of challenges, both those common to all collaborations, such as articulating shared goals and clarifying roles and responsibilities, and those unique to museum-media partnerships. Museum staff were challenged to understand the television production process, learning television terms and to understanding how media communicates science differently from the way science is presented in the museum setting. Production staff were challenged to represent a diverse set of institutions, with varying resources such as extensive or limited exhibitry, hands-on offerings, and natural wonders, into the DragonflyTV show format.

Each set of partners learned about the other—their work cultures, the media they work in, and their points of continuity as informal science educators. They also expanded their own visions of potential learning experiences, and developed a better understanding of how to work in media-museum collaborations in the future. But perhaps most important, the collaboration opens space for a new dialogue about strengths, limitations and potential for informal science education in different settings.

Appendices

Baseline Interview Questions (museum partners)

Final Interview Questions (museum partners)

Final Interview Questions (DFTV staff)

Baseline Interview Questions (museum partners)

Interviewer's name:

Interview date:

We are conducting this interview with the participants in DragonflyTV Science Center Showcase series, including museum and television personnel. The purpose of the interview is to capture a sense of the participants' expectations, hopes, assumptions, and concerns about the nature of the collaboration and its possible outcomes (particularly in terms of professional development and the quality of the completed TV segments). At each museum we will be interviewing the individual in the education and PR departments most involved with the project, as well as other individuals as appropriate to each site. We will be contacting you again, following completion of production (2 weeks following rough cut for education/curatorial staff; and 2 weeks following broadcast for PR staff).

I. Background Information

Interviewee's name

Institution

Title/position

Number of years you have worked in this field

Briefly describe your role:

A: In your institution

B. In the DragonflyTV project e.g. main contact; story development; on-site for shoot

C. Will you be participating in the development of web and print materials? What will your role be?

➤ **How did you become involved in the DFTV project? Who in your institution was initially contacted by DFTV and how did you become involved?**

(If the interviewee says they are the coordinator, or were one of the first people contacted, at what point did they realize they needed to involve others within the museum? And was that clear from the start?)

PR-Related Questions

1. What kind of work do you do with the media?
2. What kind of involvement have you had with your local PBS station?
3. What are your hopes for the collaboration in terms of the museum's relationship to the local PBS station?
4. Does the local PBS station currently broadcast DFTV?

II. Science Education

A. About definitions of “inquiry”

1. Briefly describe a project you consider was a successful inquiry-based project or initiative in which you have been involved, including what it was about, how it was inquiry-based, and why you thought it was successful.
2. How do you define **“inquiry-based” activities or experiences**, in general?
3. What are the strengths or limitations of conducting inquiry-based projects in the museum setting?
4. What have you learned about the characteristics of effective inquiry-based informal education experiences in museums? What works best to make something truly inquiry-based in your field?
5. Do you think the television medium defines inquiry-based the way you do?
 - a. How do you think the definitions differ? Do you think effective inquiry based experiences are different in the other medium? If so, how?
 - b. What are the strengths/weaknesses of conducting inquiry science in the television medium?

B. About “Interactivity”

1. Briefly describe a project that you think was a particularly successful interactive science project or initiative in which you’ve been involved. What was it about, how was it interactive, and why did you think it was successful.
2. How do you define “interactive” informal science, in general? Give an example of a successful “interactive” experience.
3. How do you define interactive specifically in the museum setting?
4. What have you learned about the specific characteristics of effective interactive informal education experiences in museums?
5. Do you think the television medium defines interactive the way you do?
 - a. How do you think the definitions differ? Do you think effective interactive experiences are different in the other medium? If so, how?

- b. Do you think the other medium has strengths/weaknesses in terms of being successfully interactive?

III. Outcomes

1. Please list some outcomes you hope might occur **as a result of this collaboration** in the following three categories. (For each outcome you mention, rate whether you think the outcome you hope for is not very likely, reasonably likely, or very likely):
 - a. Institutional outcomes (how might your organization benefit?)
 - b. Personal outcomes (how might you/your office benefit?)
 - c. Outcomes for the broader field (how might informal educators benefit?)
2. What do you hope to:
 - a. Learn from this experience?
 - b. Teach in this experience?
3. In terms of the final product (the television segments), please list some outcomes you hope might occur.
 - a. Do you think the segments will break new ground as a result of the innovative effort to blend the television and museum resources? Specifically, how do you envision those segments working/looking/sounding? (*When you think about other science television, how might this differ?*)
4. When the segments are finished, how will you personally measure their success? What segment characteristics or qualities will tell you that the goal of blending the two media has been achieved? (*What will happen that will make you feel this was a success?*)
5. If you could describe a successful television representation of a museum experience, what would it be? What should the TV segment capture? What concerns do you have about how TV will represent a museum experience? (*When you see the segment, what is going to make you say, “they got my museum right”, or what might they do that you would say, “ouch! They really didn’t get it/didn’t get who we are”*).

IV. About the collaboration so far

1. How much contact have you had with the DragonflyTV personnel to date? (*Who have you had contact with and could you describe that contact, e.g. frequency, satisfactory...*)

- Describe the process of arriving at a suitable museum experience around which to base a story. Was it easy to identify a way to use the museum? Are you satisfied with the story you came up with?
- What was the experience like when they came to shoot at your institution? Were you adequately prepared for this experience?
- 2. What are your observations so far about your communication with the TV staff? Is it what you expected, so far? Have there been any surprises? (*Have there been any miscommunications or problems?*)
 - Did you find the partner meeting in St Paul valuable? In what way was it valuable? What if anything did you learn about the collaboration and/or your DFTV partners?
- 3. Do you have any concerns at this point about how things are going?
- 4. The relationship between Twin Cities Public Television and museums has taken the form of minigrants.
 - a. Is the minigrant approach working so far?
 - b. Is the established \$8,000 minigrant to cover staff and related costs sufficient?
 - c. Twin Cities estimates it will take 80 hours of museum staff time to plan for and produce a local segment. Does this seem reasonable at this point?

Other questions or comments?

Please share any other thoughts or questions you have about the project so far.

Final Interview Questions (museum partners)

Interviewee:

Date:

Interviewer's Initials:

THE PRODUCT

1. Are you satisfied with the segment produced at your institution? Why or why not?
2. Is it accurate, fair, representative in terms of
 - Representation of the museum e.g. does the segment do justice to your institution? What else might have been included?
 - Representation of the exhibit?
 - Science story and content?
 - What would you have done differently to better showcase your museum, exhibit, or the science content?
3. Were the issues you raised in relation to the rough cut resolved? (review content of email exchange around rough cut review)
 - Were there issues you did not bring up because you didn't think they could be addressed at that point?
4. Have you had the opportunity to use the segment in your museum or educational programming? Or with staff, board members or other audiences?
 - If yes, how did you use it? Was it effective? How was it received?
 - o you have plans for using it in the future? If yes, how? If no, why not?
5. Has this experience caused you to reflect at all on the use of media in your institution?
 - Not at all, A little, A lot.
 - Explain.

SCIENCE EDUCATION

6. How would you characterize the impact of this experience on your understanding of the production of science television?

No impact. Some impact. A lot of impact.

 - What did you learn?
 - How might you use this information/experience in your work?
 - Do you think differently about the strength of DFTV and/or of television or video as a medium of science learning as a result of your collaboration?

7. What has been the impact of this experience on how you think about science education, or the roles of inquiry and interactivity in the museum setting? Have your understandings of these changed? Reaffirmed? Will you do anything differently?
 - For instance, in the past, we have heard from museums who introduced inquiry training to their docents, another saw a new audience for an old exhibit.
8. Has this experience changed how you think about curating or programming experiences in the museum? Describe specific projects (existing or possible) and how your thinking about them has changed because of this experience.
 - Would you change the exhibit which was highlighted in the show based on what you have learned?
 - In some cases, the experience has encouraged museum staff to create more interactive exhibits... have you had a similar experience?
 - Linking museum and real-world experiences?
 - The value of collaborations for exhibit or experience design?

BROADCAST PREMIERE EVENT

9. Briefly describe the event you held for the broadcast premiere of the series. What role did you play and what role did the local PBS station play?
10. Did this event represent a new way of working with your local PBS station? If so, explain.
11. Were you satisfied with the event? Why or why not? Are there things you would have done differently?

OUTCOMES

12. What do you think was the most important outcome of your involvement in this project?
 - Do you think broadcast of the segment in which your institution was featured has had or will have the marketing impact you had hoped for? Explain.
 - Has this experience inspired any new ways of thinking about using video on site?
 - Has this experience changed your understanding of the value of working with the media? And do you foresee working with the local PBS station in any new ways as a result of this experience?

CONCLUSION

13. Overall, are you satisfied with the collaboration? Explain.
 - What was most valuable about the collaboration overall?
 - What was least valuable about the collaboration overall?
14. Would you do this again? Why or why not? What would need to be different to engage in a collaboration again?
 - What was the most challenging aspect of working with DragonflyTV?
 - What advice would you give to museum staff persons going into such a collaboration?

- What did you learn about your own institution or your capacity for such projects?
15. Has this experience changed your expectations about such partnerships?
- in terms of working together
 - in terms of the value of the collaboration
 - What advice would you give to museum staff persons going into such a collaboration?
16. How would you characterize this collaboration? Equal partners or not?
- Roles
 - Expertise
17. Do you have any final thoughts or comments you'd like to share?

Thank you for your time!

Final Interview Questions (DFTV Staff)

Interviewee's name:

Interviewer:

Title/position:

Interview date:

1. Which segments did you work on and what were your roles?
2. What did you do differently because you knew you were working with smaller museums?
3. Were you surprised in any ways by these institutions?
4. Which of the segments do you feel went particularly smoothly?
5. What kinds of challenges did you face? E.g. Communication? Access?
6. How do you think production has gone this year compared to last?
 - Initial contact
 - Accessing on-site staff and resources
 - Story development
 - Shooting and logistics
7. Are there segments that you think particularly fit the DFTV model? What segments do you think strayed or were most innovative?
8. Were there differences in working with these institutions than last season's due to their size or other aspects of the institutions?
9. Was it difficult figuring out what to shoot at these smaller institutions to represent them well?
10. What did you learn about the range of science centers and the experiences they provide from working with this group of institutions?
11. Have your ideas about science education changed as a result of this season? Dealing with smaller centers, visitor centers, etc.
12. Your hopes for the project (product related); Were you trying to do anything different than last year? Improve in any way?
13. Did you think differently about how to represent the museums this season?
14. How has the communication and collaboration worked this year?
15. From what you can tell, is the minigrant approach working?
16. Did you deal with a PR person at all?
17. Other questions or comments?