



## **Evaluation Report**

**Prepared for  
Liberty Science Center**

**By**

**Knight Williams  
Research Communications**



This material is based on work supported by the National Science Foundation under grant award No. [0803987](#). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

# Table of Contents

ACKNOWLEDGEMENTS .....	3
INTRODUCTION .....	4
SURVEY PROCEDURE .....	7
SURVEY SAMPLE.....	8
PART 1: PRE-SYMPOSIUM RESPONSES .....	9
1.1 HOW DID PARTICIPANTS LEARN ABOUT THE SYMPOSIUM? .....	9
1.2 HOW MANY 2008 SYMPOSIUM PARTICIPANTS ALSO ATTENDED THE 1999 SYMPOSIUM <i>GIANT SCREEN FILMS AND LIFE LONG LEARNING</i> ? .....	10
1.3 HOW VALUABLE DID PARTICIPANTS FIND THE SYMPOSIUM PREPARATORY MATERIALS? .....	11
1.4 TO WHAT EXTENT DID PARTICIPANTS ENGAGE IN ACTIVITIES SUGGESTED IN THE SYMPOSIUM PREPARATORY MATERIALS?.....	12
PART 2: POST-SYMPOSIUM FINDINGS .....	14
2.1 HOW MUCH KNOWLEDGE DID PARTICIPANTS FEEL THEY HAD ABOUT THE POTENTIAL OF GIANT SCREEN FILMS TO COMMUNICATE SCIENCE TO THE PUBLIC BEFORE VS. AFTER THE EVENT? .....	16
2.2 HOW WELL RUN AND USEFUL DID PARTICIPANTS FIND THE SYMPOSIUM? .....	17
2.3 TO WHAT EXTENT WERE PARTICIPANTS INVOLVED IN THE SYMPOSIUM AS SUGGESTED IN THE SYMPOSIUM PREPARATORY MATERIALS?.....	18
2.4 WHAT DID PARTICIPANTS FIND TO BE THE MOST VALUABLE PART OF THE SYMPOSIUM? .....	19
2.5 WHAT DID PARTICIPANTS FIND TO BE THE LEAST VALUABLE PART OF THE SYMPOSIUM? .....	21
2.6 WHAT DID PARTICIPANTS FEEL WERE THE MOST INTERESTING THINGS THEY LEARNED FROM THE SYMPOSIUM? .....	23
2.7 HOW VALUABLE DID PARTICIPANTS FIND THE SPEAKER PRESENTATIONS? .....	25
2.8 HOW DID PARTICIPANTS FEEL ABOUT THE NUMBER OF SPEAKERS AND THE EXTENT TO WHICH THEY WERE EXPOSED TO NEW WAYS OF THINKING ABOUT SCIENCE COMMUNICATION? .....	26
2.9 HOW DID PARTICIPANTS RATE THE AFTERNOON DISCUSSION SESSIONS? .....	28
2.10 DID PARTICIPANTS THINK THAT THE SYMPOSIUM FORMAT PROVIDED THE RIGHT BALANCE OF SPEAKER PRESENTATIONS VS. GROUP DISCUSSION? ..	30
2.11 DID PARTICIPANTS HAVE SUGGESTIONS FOR A DIFFERENT FORMAT THAT MIGHT WORK EVEN BETTER? .....	32
2.12 WHAT ACTIONS DID PARTICIPANTS EXPECT TO TAKE AFTER THE SYMPOSIUM? .....	33
2.13 HOW DID PARTICIPANTS EXPECT TO APPLY WHAT THEY LEARNED AT THE SYMPOSIUM?.....	34
PART 3: FOLLOW-UP FINDINGS.....	36
3.1 PARTICIPANT INFORMATION.....	36
3.2 WHICH OF THE FOLLOW-UP ACTIVITIES SUGGESTED IN THE <i>SYMPOSIUM PREPARATORY MATERIALS</i> DID PARTICIPANTS PURSUE SINCE ATTENDING? ..	37
3.3 TO WHAT EXTENT DID PARTICIPANTS FOLLOW-UP ON OR APPLY WHAT THEY LEARNED ABOUT AT THE SYMPOSIUM? .....	39
3.4 IN WHICH INDUSTRY AREAS DID PARTICIPANTS APPLY WHAT THEY LEARNED AT THE SYMPOSIUM? .....	41
3.5 WHAT TYPES OF CHALLENGES OR OBSTACLES DID PARTICIPANTS ENCOUNTER IN APPLYING WHAT THEY LEARNED AT THE SYMPOSIUM?.....	42
3.6 WHAT DID PARTICIPANTS DO WITH THE <i>SYMPOSIUM PREPARATORY MATERIALS</i> AFTER ATTENDING THE SYMPOSIUM? .....	43
3.7 UPON REFLECTION, WHAT DID PARTICIPANTS SHARE ABOUT THE EXTENDED IMPACT OF THE SYMPOSIUM ON THEM OR THEIR WORK? .....	44
3.8 DID PARTICIPANTS HAVE SUGGESTIONS FOR HOW GSCA COULD IMPROVE THE NEXT SYMPOSIUM TO BETTER SERVE THEIR INDUSTRY AREA? .....	46
CONCLUSIONS .....	47
DISCUSSION.....	54
APPENDIX 1: PARTICIPANTS' COMMENTS ON INDIVIDUAL SPEAKER PRESENTATIONS .....	60

## Acknowledgements

The GSCA symposium evaluation was conducted by Knight Williams Research Communications (Knight Williams Inc), an independent evaluation firm specializing in the development and evaluation of science education media and outreach projects. The firm's projects are frequently national or regional in scope, target public and/or professional audiences, are implemented in a wide range of settings, and typically incorporate one or more of the following communications' media: television programs, giant screen films, radio programs, museum exhibits, websites, interactive multimedia, and curricula or other print materials.

The symposium evaluation was directed by Valerie Knight-Williams and Divan Williams, Jr., with assistance from evaluation associates Ora Grinberg, Eveen Chan, David Tower, and Mason Bonner-Santos. The evaluation team would like to thank the following individuals and groups within and beyond GSCA for their assistance in facilitating the evaluation:

- Mary Nucci and Emlyn Koster for: reviewing the evaluation procedures, coordinating the evaluation logistics, and co-presenting the evaluation findings at the *Lessons Learned from GSCA's 2008 Symposium* presentation at the GSCA 2009 International Conference and Trade Show Lifelong Learning professional development session.
- Tammy Seldon of GSCA for helping to coordinate logistics for the summative evaluation.
- James Hyder from the LF Examiner for providing images of the symposium for use in this report.
- The GSCA Lifelong Learning Committee for reviewing the follow-up evaluation procedures.
- Kelly Germain of GSCA for web and email support in contacting symposium participants for the 9 month follow-up evaluation.
- Sandra Welch and Valentine Kass from the National Science Foundation for assisting in grant administration related to the evaluation.

# Introduction

In September 2008 the Greater Screen Cinema Association (GSCA) hosted the one-day symposium *Connecting Society with Science: the Greater Potential of Giant Screen Experiences*. Funded by the National Science Foundation (NSF), the symposium was held in Jersey City, New Jersey, one day before the GSCA International Conference and Trade Show.

## Symposium history

The 2008 symposium served as a sequel to a previous NSF-funded symposium held ten years earlier (NSF award no. 9910643). Entitled *Giant Screen Films and Lifelong Learning*, the 1999 symposium also preceded the annual conference of the former Giant Screen Theater Association (GSTA), and was conceived as a professional development opportunity for giant screen industry representatives from diverse fields. The event drew 125 participants, including: giant screen filmmakers and distributors, museum and science center staff, evaluators, academic researchers, and industry news media. In addition to hosting pre and post networking social events, the symposium day was structured as two integrated parts: a morning session of speaker presentations followed by afternoon session of focus group work and reporting. Each session focused on the use of research to inform educational film development, later summarized by the symposium organizers as: *a research-informed approach to improve the theory and practice of educationally-directed film development* (NSF Final report, 2010).

## Symposium goals

The 2008 sequel symposium generally followed the 1999 format and was again conceived as a professional development experience for giant screen industry representatives. The content focus of the 2008 event, however, was on science-related opportunities and challenges within the giant screen film industry. Participants were also exposed to multi-disciplinary perspectives on filmmaking from the fields of cognitive neuroscience, education, and science communication, as follows:

*Reflecting NSF's core strength in the specialized area of educational giant screen experiences about science, the focal points of the 2008 sequel symposium were science-and-society subject matter, multi-disciplinary inputs to inform innovative approaches in filmmaking with learning goals, and synergistic producer-exhibitor-distributor relationships. Experts in cognitive neuroscience, education, science communication, and the evaluation and communication of science and scientific controversy provided participants with insights on how best to seize upon the greater educational potential of giant screen film experiences. These were preceded by a review of instructive moments in films that have won the GSTA and GSCA annual lifelong learning awards, which were an outcome of the 1999 Symposium, and followed by two focus-group questions that delve into the Symposium theme (NSF Final report, 2010).*

The 2008 symposium organizers further specified the following set of outcomes:

- Extend the value of the 1999 symposium through an increased focus on science in giant screen films and more effective filmmaking;
- Ground the conceptualization and production of giant screen films in research on science communication and other allied areas of inquiry;
- Strengthen the connection between science and lifelong learning in giant screen films by incorporating best practices in science communication;

- Disseminate results through published proceedings, online reporting and a peer-review publication; and
- Enable dialogue among industry members through the use of a new GSCA listserv about lifelong learning and the giant screen medium to encourage producer-exhibitor-distributor cooperation.

### Assessment of goals

To address the extent to which the symposium achieved the professional audience goals described to the NSF as a condition of funding, the grant provided for an independent evaluation firm to conduct an on-site and follow-up evaluation. The evaluation and project teams developed a core set of 11 evaluation questions after factoring in: (i) the symposium goals conceived for the giant screen industry representatives attending the event, (ii) the secondary data available to the evaluation process, and (iii) project budget and logistical constraints. The evaluation questions included;

- How many individuals attended the symposium and how can this participant group be characterized?
- How did participants find out about the symposium? What were their expectations prior to attending?
- To what extent did participants attend the 1999 NSF-funded symposium which in part inspired the 2008 event?
- To what extent did participants take advantage of materials provided to them before the event?
- To what extent did participants complete activities at the symposium suggested in these materials?
- How did participants react to the symposium in terms of overall organization and usefulness?
- What did participants find most and least valuable about the symposium?
- How did participants rate the morning speaker presentations and afternoon discussion sessions in terms of personal engagement, perceived effectiveness, and relative balance?
- What were the most interesting things participants learned from the symposium?
- To what extent did they *expect* to follow-up on or apply what they learned?
- To what extent did they *actually* follow-up or apply something they learned?

The evaluation strategy focused on inviting symposium participants to complete pre- and post-event questionnaires on the day of the symposium, as well as a follow-up online survey nine months later. The evaluation also incorporated the use of secondary data, including educational materials and planning documents developed for the symposium and registrants' online registration forms completed prior to the event.

### Registrants' expectations of the symposium

In the weeks leading up to the symposium, the event organizers posted an online registration form on the GSCA website. The registration form asked registrants for basic contact and background information, and to describe their expectations for the symposium.

Table 1 summarizes the expectations registrants most frequently mentioned and the percentage offering each response. Nearly two-thirds (61%) of the 95 registrants listed at least one expectation for the event. While no particular expectation stood out among their responses, five themes were apparent across

<b>Table 1</b>	
<b>Registrants' expectations of the symposium</b>	
	<b>(n=95)</b>
Learn about the potential of film to educate and inspire the about science	26%
Learn about how other media can augment/create synergy/extend the impact of giant screen films	16%
Dialogue and form partnerships across fields	11%
Get an overview of giant screen industry	4%
Gather new film ideas	1%
Left blank	39%

their responses. One-fifth (26%) of the registrants expected to find out about the potential of giant screen films to educate and inspire the public about science.<sup>1</sup> About one-quarter (24%) expected to learn how other media can augment, create synergy, or extend the impact of giant screen films. The remaining registrants expected to start a dialogue and form partnerships across fields (17%), get an overview of the giant screen industry (7%), and gather new film ideas (2%). Examples of registrants' comments follow.

*Learn about the potential of giant screen films to educate/inspire in science*

- *A better understanding of how to engage and inspire youths and future generations to become more involved in science and sustainable practices.*
- *I am interested in the research being done in the communication of science and promoting it to the public, as well as, how this is affecting the development of Giant Screen films.*
- *I am very interested in learning more about the role that Giant Film experiences can play in the public understanding of science.*
- *I would hope to gain further insight into means of effectively communicating scientific facts and educational messages through film and ancillary activities.*
- *Strengthening the connection between science and lifelong learning in giant screen films by incorporating best practices in science communication.*

*Learn about how other media can augment/create synergy/extend the impact of giant screen films*

- *Insight into how to make giant screen films a more integral part of accomplishing mission*
- *A broader view of how science can be integrated into our industry, from the giant screen to other media offerings that complement a film's release.*
- *I would also like to look for synergies between Giant Films, exhibitions, and education programs for staff.*
- *Learn of new directions and initiatives that are being launched in the area of science and society and how film programming and film production might augment those efforts...learn of new ways that centers of informal learning can work with the filmmaking and exhibiting communities.*
- *I hope to better inform our film development focus and film production objectives as well as collateral material direction.*

*Dialogue and form partnerships across field*

- *I'm looking forward to the dialogue between producers, exhibitors and distributors.*
- *I will meet other professionals who are hoping to link exhibitions with film products in order to promote enhancement of public understanding of science. Partnerships and potential future ventures could be seeded at the symposium.*
- *I believe connecting society with science can best be achieved through international collaboration among our peers. I hope we will learn from each other by sharing successes and failures from all over the world and working together to benefit the general public.*
- *I am seeking financial and marketing partnerships with science based organizations.*
- *Further insight and ideas as to how filmmakers and exhibitors can work together to produce excellent learning, fun films.*

*Get an overview of giant screen film industry*

- *As a first-time attendee I hope to learn as much as I possibly can about the industry as a whole,*
- *A greater understanding of how my "little world" at the museum is similar/different than others.*

*Gather new film ideas*

*What new film ideas are out there and how to make it presentable to the average public.*

---

<sup>1</sup> Note that 95 individuals who were not involved in the Symposium's organization or evaluation registered for the event. The percentage of registrants addressing this question was 61% (58/95).

## Survey Procedure

Symposium participants were invited to complete a total of three questionnaires relating to the symposium: one immediately before the event, one immediately after, and one nine months later to explore the longer term impact of the event. Prior to completing each questionnaire participants were informed that the evaluation was being conducted by an independent firm specializing in the evaluation of informal science education media projects. Participants were further informed that their responses: were anonymous, would be combined with responses from other participants and reported in the aggregate, and were an important part of the feedback being gathering for the project as a recipient of National Science Foundation support.

Survey questions were developed by consulting the project grant proposal to the NSF, the symposium organizers, the Lifelong Learning Committee, the symposium agenda, the Symposium Preparatory Materials distributed to participants prior to the symposium (see section 1.5 for additional information), and the symposium online registration forms.

Statistical analyses were conducted on all quantitative data generated from the evaluation. To explore for a possible significant difference for one self-report knowledge item appearing on both the pre- and post-event surveys, a Wilcoxon Signed-ranks test was applied. To explore for possible significant differences in the posttest symposium ratings between the two predominant groups represented at the symposium (producers and exhibitors)<sup>2</sup> Mann-Whitney tests were applied. Statistically significant findings (hereafter referred to as “significant”) at  $p \leq .05$  are reported in the text.

To help determine whether a significant difference was a difference of practical concern, effect sizes were also computed. As noted by Tahlheimer and Cook (2002) *“whereas statistical tests of significance tell us the likelihood that experimental results differ from chance expectations, effect-size measurements tell us the relative magnitude of the experiment treatment. They tell us the size of the experimental effect.”*<sup>3</sup> Effect sizes are reported in the text where appropriate. Following Cohen’s interpretation (Cohen, 1992),<sup>4</sup>  $r = .10$  indicates a small effect,  $r = .30$  a medium effect, and  $r = .50$  a large effect.

Content analyses were performed on the qualitative data generated in the open-ended questions. The analysis was both deductive, drawing on the symposium objectives, and inductive, by looking at the participants responses for overall themes, keywords and key phrases. All analyses were conducted by two independent coders. Any differences that emerged in coding were resolved with the assistance of a third coder.

---

<sup>2</sup> The two groups of sufficient size to warrant reasonable comparisons were producers (31% of sample of 51 total paired surveys) and exhibitors (29% of sample of 51 total paired surveys).

<sup>3</sup> Thalheimer, W. and Cook, S. (2002). How to Calculate Effect Sizes from Published Research: A simplified methodology, *Work-Learning Research*, p. 2.

<sup>4</sup> Cohen, J. (1992). A Power Primer. *Psychological Bulletin*, 112 (1), 155-159.

## Survey Sample

A total of 62 participants completed both a pre and post-event questionnaire. Based on the 95 individuals who registered for the event, the response rate approximates 65%. As the final number of symposium attendees wasn't confirmed, however, the *actual* response rate could be higher if more individuals registered for the event than ultimately attended.<sup>5</sup>

Table 2 summarizes the demographic and background information for the survey participant group, which included:

- Somewhat more males (58%) than females (42%).
- Participants of various ages, ranging from 24-71 years, with a mean age of 49.
- A racial distribution comprising 89% Whites, 3% Asian, and 2% African-Americans. Five percent (5%) of the participants were of Hispanic Origin.
- A close balance of producers (37%) and exhibitors (32%), with fewer educators (11%), distributors (9%), students (8%) or other industry representatives (9%).

<b>Table 2</b>		
<b>Participant background information<sup>6</sup></b>		
Demographic/ background factor	Categories	(n=62)
<b>Gender</b>	Male	58%
	Female	42%
<b>Age Group</b>	Age range	24-71
	Mean	49
<b>Race/Ethnicity</b>	White	89%
	Asian	3%
	African-American/Black	2%
	Hispanic Origin	5%
<b>Industry segment represented</b>	Producer	37%
	Exhibitor	32%
	Educator	11%
	Distributor	9%
	Student	8%
	Other	9%

Note that within the survey participant group (n= 62), only 51 had matching pretests and posttests identified by code phrase/password (and in 1 case by writing comparisons). So, as to not discard the feedback from the remaining 11 participants whose codes could not be matched with certainty, their responses are included in the analyses of questions that did not apply subgroup or pre to post-event analyses. In cases where these statistics were applied, however, n=51 as noted in the text.

<sup>5</sup> Questionnaire response rates were calculated by dividing the number of questionnaires accepted for analysis by the number of participants asked to complete a questionnaire, which in this case was best estimated by using the number of individuals who registered for the event but were not involved in its organization or evaluation (n=95).

<sup>6</sup> Note that the column sums in many tables will exceed the total (n) for the column if participants offered more than one category of response.



# Part 1: Pre-Symposium Findings



*Courtesy of James Hyder, LF Examiner*

Sections 1.1 - 1.4 summarize participants' responses to questions about: how they learned about the symposium, whether they attended the 1999 symposium which helped inspire the 2008 event, how valuable they found the materials provided to them ahead of the event, and whether they managed to complete activities recommended in the materials prior to attending.

## 1.1 How did participants learn about the Symposium?

**Participants most often learned about the symposium through announcements that were emailed to GSCA members, posted on the GSCA website, or distributed via GSCA e-news.**

Table 3 shows the 7 different ways participants learned about the symposium. Most often participants pointed to an announcement that was emailed to GSCA members (28%), posted on the GSCA website (20%) or distributed via the GSCA e-news (18%). Somewhat less often participants cited: a work or school source (15%), the Lifelong Learning Committee (12%), a direct invitation (8%), or an email announcement to the ASTC listerv (3%).

<b>Table 3</b>	
<b>How participants learned about the symposium</b>	
	<b>(n=62)<sup>7</sup></b>
Email to GSCA members	28%
GSCA website	20%
GSCA e-news	18%
Work or school	15%
Lifelong learning committee	12%
Direct invitation	8%
Email to ASTC listerv	3%

<sup>7</sup> Note that the column sums in many tables will exceed the total (n) for the column if participants offered more than one category of response.

## 1.2 How many 2008 symposium participants also attended the 1999 symposium *Giant Screen Films and Life Long Learning*?

Most 2008 symposium participants did not attend the 1999 symposium. The main reason participants gave for not attending was that they weren't part of the industry at the time.

	(n=62)
No	80%
Yes	18%
Don't remember	2%

Participants were asked whether they attended the 1999 symposium *Giant Screen Films and Life Long Learning*, also hosted in Jersey City one day before the GSTA<sup>8</sup> conference. As Table 4 shows, most 2008 symposium participants (80%) did not attend the 1999 symposium. Nearly one-fifth (18%), however, did participate, and 2% could not remember.

To explore why such a large percentage of participants did not attend the 1999 symposium, the follow-up evaluation conducted nine months after the symposium asked participants to identify their reason(s) for not attending.<sup>9</sup> Although the follow-up was completed by just half of the initial participant group (n=30) a comparable percentage of participants in each case reported not attending the 1999 symposium (80% initial survey group, 73% follow-up survey group).

As Table 5 shows, participants' main reason for not attending was that they weren't part of the industry at the time (40%). Just over one-quarter (27%) said they didn't know about the event, while 13% offered other reasons, including:

- *I was not in charge of Imax film negotiation at that time, not sure if the person who was in charge by then, attended.*
- *Others from my Museum attended.*
- *Too busy.*

	(n=30)
Didn't attend because....	73%
<i>Was not part of industry at time</i>	40%
<i>Didn't know about the event</i>	27%
<i>Other</i>	13%
No response	4%

<sup>8</sup> GSCA was previously the GSTA (Giant Screen Theater Association)

<sup>9</sup> The follow-up evaluation is described in detail starting on page 36.

### 1.3 How valuable did participants find the Symposium Preparatory Materials?

Participants generally found the Symposium Preparatory Materials to be of value.



*Courtesy of James Hyder, LF Examiner*

The symposium organizers distributed a spiral bound booklet entitled “Symposium Preparatory Materials” to registrants prior to attending the event. The booklet included: information on the 1999 symposium, welcoming letters, acknowledgements, suggestions for preparing the for event, filmmakers’ papers, invited speakers’ papers, student scholarship and award papers, photographs, biographies of filmmakers and speakers, suggested additional readings, a list of symposium registrants, a partial list of registrants’ expectations, and a chronological list of giant screen films 1970-2008. The materials can be accessed at: <http://www.giantscreencinema.com/MemberCenter/SymposiumMaterials.aspx>. The purpose of sending the materials ahead of the event was to give participants a chance to read them and formulate questions and thoughts for further consideration at the symposium.

Participants were asked to rate how valuable they found the Symposium Preparatory Materials on a scale of 1 (not at all valuable) to 7 (extremely valuable). Table 8 shows the percentage of participants that selected each rating.

<b>How valuable participants found the Symposium Preparatory Materials (n=51)</b>								
Not all valuable	1	2	3	4	5	6	7	Extremely valuable
	0%	0%	9%	22%	16%	20%	33%	

Participants generally found the materials to be of value (mean 5.5, median 6.0, range 3 - 7). Although a space was provided for this purpose, participants did not elaborate on their ratings of perceived value.

## 1.4 To what extent did participants engage in activities suggested in the Symposium Preparatory Materials?

Prior to the symposium the majority of the participants said they read at least one of the nine Advance Papers sent to them, although relatively few listed issues that arose from their review. Lack of time and receiving the materials too late were the main reasons offered for not further engaging with the materials. The majority of participants also said they took time to familiarize themselves with the symposium schedule and that they brought the Symposium Preparatory Materials to the event.

### Extent to which participants read the Advance Papers

As Table 5 shows, three-fifths of the participants (59%) read at least 1 of the 9 Advance Papers. Among those who did not read anything (41%), the main reasons cited were lack of time (18%), followed by not receiving the materials (11%), receiving the materials too late (6%), registering last minute (5%), or other reasons, such as forgetting or not realizing their relevance (9%).

Participants were also asked to indicate which of the 9 Advance Papers they read and formulated a response to as suggested in the Symposium Preparatory Materials. As Table 6 shows, while between one-third and one-half of the participants (35% - 54%) said they read a given paper, less than one-seventh in each case (5%- 14%) reported actually forming a response. Note that the order of papers listed in Table 6 reflects the order the papers appeared in the booklet. Papers that appeared earlier in the book were somewhat more likely to be read.

	(n=62)
Read at least one paper	59%
Didn't read any papers because...	41%
<i>No time</i>	18%
<i>Didn't receive</i>	11%
<i>Received too late</i>	6%
<i>Registered last minute</i>	5%
<i>Other – forgot, didn't realize relevance</i>	9%

Have a chance to read?	Get to formulate response?	Title of Advance Papers
54%	12%	<i>Giant Screen Films and Lifelong Learning</i>
48%	14%	<i>Grand Challenge for the Giant Screen</i>
48%	11%	<i>Science and Visual Communication</i>
40%	12%	<i>Museum Predicaments: (Re) Considering Institutional Forms and Controversy in Global Risk Society</i>
42%	9%	<i>The Inconvenience of Truth: Rethinking the Agency of Science Film Spectators in a Post-Postmodern Era</i>
45%	9%	<i>Picturing Science</i>
35%	5%	<i>Using Telepresence to Communicate Science in Giant Screen Cinema</i>
37%	9%	<i>The 12 Step Program (for Communicating 82 Science): Mind the Gap!</i>
35%	6%	<i>An Urgent Challenge</i>

**Extent to which participants engaged in other suggested activities**

When asked if they had an opportunity to complete three additional activities listed in the Symposium Preparatory Materials beyond reading the Advance Papers, 98% of the participants said they had done at least one, with only one participant explaining a last minute registration as the reason for not doing any activities. As Table 7 shows, four-fifths (82%) of the participants familiarized themselves with the schedule while two-thirds (66%) brought the Preparatory Materials to the symposium. One-fifth (22%) listed questions and other thoughts that arose from reviewing the Advance Papers.

<b>Table 7</b>	
<b>Extent to which participants did other activities suggested in the Symposium Preparatory Materials</b>	
	<b>(n=62)</b>
Familiarized themselves with the schedule	82%
Brought Preparatory Materials to the symposium	66%
Listed questions and other thoughts that arose from the papers	22%
None of the above – registered last minute	2%

## Part 2: Post-Symposium Findings

Sections 2.1 - 2.13 summarize participants' responses to questions about their self-assessed knowledge of the symposium's main topic and their assessment of: the event's organization and usefulness; the scope of their involvement in the symposium; the things they found most and least valuable about the symposium; the relative value of the presentations and discussion sessions; the most interesting things they learned from the symposium; the ways in which they felt the symposium format could be improved; and how they expected to apply what they learned from the event.

### Symposium schedule

The symposium schedule involved introductory remarks, a montage of award-winning films; morning presentations by invited speakers, formal Q&A, lunch with an invited speaker, afternoon break-out sessions for participants and speakers to dialogue around two core questions, and a report-out/larger group discussion and wrap-up.

The two core questions participants addressed in the break-out sessions included:

#### Question 1:

*One of the main outcomes of the 1999 symposium, Giant Screen Films and Lifelong Learning, was a set of guideline steps for the development of films with audience learning goals. For films that aim to connect society with science, and with your experience and perspective as well as the content of the morning session in mind, what would be enhancements to the format and content of these film development guidelines? And in what ways could producer-distributor-exhibitor communications be improved?*

For Question 1, participants were assigned seats based on interest areas indicated when they registered.

#### Question 2:

*Building on your pre-symposium views on science subject areas of most interest, the contents of the morning and lunchtime sessions, and mindful of the greater scope of opportunity for giant screen experiences, which five science subject areas do you think would result in the most valuable contributions of our industry to the Earth and human affairs over the next decade? And for each of these subject areas, what would be the two main goals for audience learning and would they need to tackle any controversial matters?*

For Question 2, participants were separated by industry segment (producer, distributor or educator) as self-identified on the registration materials. Each group discussed the same question, referring back to the aggregate lessons from the morning session. A spokesperson for each industry segment presented the results of discussions to the reconvened whole Symposium.

The schedule on page 15 was provided within the Pre-Symposium Materials. The order of events was generally followed on the day of the symposium.

## Symposium schedule

**7:15 am Networking Breakfast**, Hudson Pre-Function  
Pre-Symposium Survey

**8:15 am Welcome Remarks**, Hudson I, II, III  
Emlyn Koster, Liberty Science Center, USA  
Valentine Kass, National Science Foundation, USA

**8:30 am Montage of GSCA Best Films for Learning Award Winners**

**9:30 am Speakers**

Science and Visual Communication, Ann Marie Barry, Boston College, USA; The Inconvenience of Truth: Rethinking the Agency of Science Film, Spectators in a Post-Postmodern Era, Lisa Cartwright, University of California-San Diego, USA; Using Telepresence to Communicate Science in Giant Screen Cinema, Matthew Lombard, Temple University, USA; Picturing Science Felice Frankel, Harvard University, USA

**10:50-11:00 am Coffee Break** Hudson Pre-Function

Giant Screen Films and Lifelong Learning, Alice Apley, RMC Research, USA; The 12 Step Program (for Communicating Science): Mind the Gap! Ivan Oransky, Scientific American, USA; Museum Predicaments: (Re) Considering Institutional Forms and Controversy in Global Risk Society, Fiona Cameron, University of Western Sydney, Australia; To be Announced, Jeffrey Sturchio, Merck Inc., USA; Grand Challenge for the Giant Screen, Randy Atkins, National Academy of Engineering, USA; An Urgent Challenge, Beverly Sheppard, Institute for Learning Innovation, USA

**12:30 pm Lunch**, Hudson IV, V, VI  
James Hyder, *LF Examiner*

**1:30 pm Breakout session 1**, Hudson I, II, III

One of the main outcomes of the 1999 symposium, *Giant Screen Films and Lifelong Learning*, was a set of guideline steps for the development of films with audience learning goals (see pages 6-8). For films that aim to connect society with science, and with your experience and perspective as well as the content of the morning session in mind, what would be enhancements to the format and content of these film development guidelines? And in what ways could producer-distributor-exhibitor communications be improved?

**Report 2:25-3:00 pm**

**3:00 pm Coffee Break**, Hudson Pre-Function

**3:20 pm Breakout session 2**, Hudson I, II, III

Building on your pre-symposium views on science subject areas of most interest (see note below), the contents of the morning and lunchtime sessions, and mindful of the greater scope of opportunity for giant screen experiences, which five science subject areas do you think would result in the most valuable contributions of our industry to the Earth and human affairs over the next decade? And for each of these subject areas, what would be the two main goals for audience learning and would they need to tackle any controversial matters?

**Report 4:15-4:50 pm**

**4:50 pm Final remarks**

Doug King, Incoming Chair, Lifelong Learning Committee, GSCA  
Toby Mensforth, Chair, Executive Committee, GSCA

**5:00 pm Evaluation and surveys**

Valerie Knight-Williams, Knight-Williams Research Communications

**5:30 pm Reception**, Hudson Pre-Function

**6:00 pm Dinner**, Hudson IV, V, VI

**6:45 pm Dava Sobel** (*Longitude, Galileo's Daughter, The Planets*)

**7:50 pm Final thoughts**

Emlyn Koster, Liberty Science Center

## 2.1 How much knowledge did participants feel they had about the potential of giant screen films to communicate science to the public before vs. after the event?

Participants felt they had significantly more knowledge about the potential of giant screen films to communicate science to the public after the symposium compared to before.



*Courtesy of James Hyder, LF Examiner*

Both before and after the symposium, participants were asked to use a scale of 1 (no knowledge) to 7 (extensive knowledge) to rate their knowledge of the symposium's main topic: the potential of giant screen films to communicate science to the public. Table 9 shows the percentage of participants that selected each rating before and after the event.

**Table 9**  
**How much knowledge participants felt they had about the potential of giant screen films to communicate science to the public (Pre → post percentages of ratings, n=51)**

No knowledge	1	2	3	4	5	6	7	Extensive knowledge
Pre-event →	12%	2%	26%	18%	20%	12%	12%	
Post-event →	0%	2%	0%	16%	28%	45%	12%	

Participation in the symposium significantly increased participants' self-assessed knowledge of the potential of giant screen films to communicate science to the public. A Wilcoxon Signed-ranks test indicated that participants at the conclusion of the symposium ( $Mdn=6$ ) self-rated their knowledge significantly higher than at the start of the symposium ( $Mdn=4$ ),  $Z=4.41$ ,  $p<.001$ ,  $r=.62$ .<sup>10</sup> The effect size in this case is considered a large effect.<sup>11 12</sup>

<sup>10</sup> The analysis used the Wilcoxon Signed-ranks test on the 51 surveys that had matched pre and post surveys identified by code phrase/password (and in 1 case by writing comparisons).

<sup>11</sup> As noted under Method, the effect size helps interpret whether the difference observed is a difference of practical significance, in other words, a difference that matters.

<sup>12</sup> Note that the dense symposium schedule as well as budget and logistical constraints resulted in the evaluators choosing a self-report indicator of knowledge gain. Note that a more effective approach to assess knowledge gain from pre- to post-event would be to ask participants a combination of questions, and reported as a composite score, rather than relying on one self-



## 2.2 How well run and useful did participants find the symposium?

Participants generally agreed that the symposium was well run, a good use of their time, and that they acquired knowledge that would have been difficult to obtain without attending in person. Participants also agreed that they received enough information about the agenda prior to attending, although some would have preferred earlier receipt of the Symposium Preparatory Materials.

Participants rated their overall symposium experience by indicating how much they agreed or disagreed with 4 statements, using a scale of 1 (strongly disagree) to 7 (strongly agree). The percentage of participants selecting each rating is presented in Table 10.

	Strongly disagree 1	Disagree 2	Somewhat disagree 3	Neutral 4	Somewhat agree 5	Agree 6	Strongly agree 7
The symposium was well run.	0%	0%	0%	0%	8%	29%	63%
Attending the symposium was a good use of my time.	0%	0%	0%	6%	4%	43%	47%
I acquired knowledge at the symposium that would have been difficult to obtain without being there in person.	0%	2%	0%	4%	12%	55%	26%
I received sufficient information about the symposium agenda before I attended.	2%	2%	0%	8%	10%	36%	42%

Overall, participants agreed that the symposium was well run (mean 6.5, median 7, range 5-7), that attending the symposium was a good use of their time (mean 6.3, median 6.0, range 4-7 ) and that they acquired knowledge at the symposium that would have been difficult to obtain without being there in person (mean 6.0, median 6.0, range 2-7). Participants also generally agreed, although not quite as consistently, that they received sufficient information about the symposium agenda before attending (mean 5.9, median 6.0, range 1-7). When invited to comment on their ratings, a few participants observed that they would have preferred earlier receipt of the Symposium Preparatory Materials earlier, as in:

- *The materials we were supposed to read in advance were sent out too late for me to receive them before the conference.*
- *The symposium was well run, but would have appreciated earlier receipt of the book.*

report measure. The use of a control group, as discussed on page 56, would have addressed the potential for a pretesting effect, or the possibility of sensitizing participants to be attune to the symposium topic mentioned in the question.

## 2.3 To what extent were participants involved in the Symposium as suggested in the Symposium Preparatory Materials?

**Most participants reported that they networked and contributed to break-out discussions at the symposium and that the symposium broadened, deepened, or challenged their thinking about best practices. Relatively few asked questions during the formal question/answer periods, although these periods were held with the full group of participants so limited time was set aside for this purpose.**

As Table 11 shows, most participants engaged in the three of the four activities suggested in the Symposium Preparatory Materials. Most reported that they: networked with others while at the symposium (87%), discussed information presented during the break-out discussions (81%), and that their thinking about best practices was broadened, deepened, or challenged (74%). A much smaller percentage (16%), however, said they asked questions about the information presented during the question periods. In interpreting this finding, it is important to note that the question periods were conducted in the large group setting with limited time set aside for Q&A, and therefore limited opportunities for participants to ask questions.

<b>Table 11</b>	
<b>Extent to which participants were involved in the symposium as suggested in the Symposium Preparatory Materials</b>	
	<b>(n=62)</b>
Networked with others at the symposium	87%
Discussed information presented at the symposium during the break-out discussions	81%
Thinking about best practices was broadened, deepened, or challenged	74%
Asked questions about the information presented at the symposium during the question periods	16%

## 2.4 What did participants find to be the most valuable part of the symposium?

Participants most often found value in the morning speaker presentations and afternoon discussions, followed by the networking opportunities and the Symposium Preparatory Materials.

Table 12 shows the aspects of the symposium participants found to be most valuable.

Table 12 What participants found most valuable about the symposium	
	(n=62)
Morning speaker presentations <i>(engaging, thought-provoking, offered diverse viewpoints)</i>	52%
Afternoon discussions <i>(reinforced information learned, offered different viewpoints, enabled brainstorming and thinking ahead to applications)</i>	34%
Meeting others/networking	10%
Reading the Symposium Preparatory Materials	8%
Other	18%

One-half (52%) of the participants found the morning presentations to be most valuable. Most of these participants referenced the presentations as a whole, appreciating that they were diverse in viewpoint, interesting, or thought-provoking, although some praised the specific presentations on visual communication and brain research. One-third (34%) of the participants found the afternoon discussions particularly valuable given that they reinforced information they learned from the presentations, exposed them to different viewpoints, and/or enabled them to brainstorm and think ahead to future applications in their own work. Finally, one-tenth or less of the participants mentioned networking (10%) or reading the Symposium Preparatory Materials (8%).

Examples of participants' general and specific comments are included below.

### Morning speaker presentations

- *Presenters whose work provided a new lens for thinking about large format films.*
- *Some of the presenters were very enlightening and engaging and brought forth content and ideas which related well to the issue of science education in films. Thought provoking!*
- *Presentations in morning-lots of diverse content applicable to not only films but other aspects of inform learning.*
- *Guest speakers-got me to look at education and science in different ways as it relates to visual audio communication in the large format arena.*

- *Hearing from so many terrific speakers and using that info as a setting for sessions.*
- *The talk on mirror neurons and the prospects for understanding how people are affected by visual presentations.*

#### Afternoon discussions

- *Breakout sessions, reinforced learning/ implementing ideas gleaned from morning sessions and other insights from participants.*
- *Subsequent panel discussions. It was enlightening to discover the multiple viewpoints and better understand the driving forces resulting in large format production for science.*
- *Round table discussions- allowed brainstorming and digestion of different ideas floating around all morning.*
- *The breakout sessions as we had 100 people focusing on some key issues and the resulting reports were very informative.*
- *The breakout sessions. Was able to hear points of most interest from all areas, producer, exhibitor, scientists etc.*
- *Talking out ideas in the breakout sessions.*
- *Breakout session 1: Good discussion on educational content and how to connect the audience.*
- *Breakout session II-great conversations brought up fascinating issues I'll think about as a filmmaker.*
- *Breakout sessions, esp. #2. Gave us a chance to get personally involved in developing a framework for future LF films.*

#### Networking

- *Meeting others focused on science and the Giant screen.*
- *Meeting the various constituents -exhibitors, producers, and funders behind giant screen film-learning about the field as a whole.*
- *Exposure to exhibitors and producers.*
- *Strong networking. This community needs to find consensus about its technological future.*

#### Papers

- *Reading the pre symposium papers.*

#### Other

- *Seeing samples of the best films, as I'm an outsider, and hadn't seen all of these before.*
- *The inspiration and dedication it showed of all (industry sector) participants to the topic and giant screen films in general.*
- *I have invested part of my time to think about the subject and I have obtained personal conclusions to adapt in my institutions.*
- *Focus on audience changing expectations.*
- *Understanding process of filmmaking- producers/distributors/filmmakers.*
- *Understanding that evaluations have become essential.*
- *What topics people felt should make it on the big screen. People want to be inspired deal with controversy and make a difference.*

## 2.5 What did participants find to be the least valuable part of the symposium?

Participants most often pointed to some aspect of the morning presentations or afternoon discussions when asked to describe the least valuable part of the symposium. When characterizing the morning presentations participants tended to describe them as: too academic or theoretical; lacking in practical relevance; too dense or packed with content; or too similar to the presenters' Advance Papers. The afternoon discussions meanwhile were most often characterized as: redundant, difficult to interpret, or having group report outs that were too long.

Less often participants pointed to the schedule being too dense or long or indicated that viewing the montage of film clips was redundant or a poor use of time.

Table 13 shows the aspects of the symposium participants found to be least valuable.

Table 13 What participants found least valuable about the symposium	
	(n=62)
Morning presentations – <i>too academic/theoretical, lacked relevance, too similar to Advance Papers, too packed/dense</i>	27%
Afternoon discussions – <i>questions hard to follow/interpret, report-out too long, sessions redundant</i>	21%
Nothing/all was valuable	18%
Schedule - <i>too long/too much</i>	8%
Montage of film clips – <i>had seen before/waste of time</i>	8%
Other	8%
Left blank	10%

About one-quarter (27%) of the participants found some aspect of the morning presentations to be least valuable. Most often these individuals observed that the presentations: were pitched as too academic or theoretical, were too dense or crammed with content; lacked relevance to their area of industry; or were too similar to the Advance Papers they provided for the Pre-Symposium book. One-fifth (21%) of the participants focused on something related to the afternoon discussion sessions. Most often these participants noted that the report-outs took too long, that the discussion questions were hard to interpret or follow, or that the two discussion sessions seemed redundant. While most of these participants did not

focus on a specific session, those who did focused on the 2<sup>nd</sup> session, here again questioning its relevance or the clarity of the guiding questions. Finally, two smaller groups of participants (8% each) pointed to other aspects of the symposium, including that the day's schedule was too long or too dense and that viewing the film clips was redundant since participants were already familiar with the films. A few others pointed to other aspects of the symposium (8%), or left the question blank (10%).

Examples of participants' comments follow below.

#### Morning speaker presentations

- *Academic presentations...too high level, what were they talking about?*
- *The talks in general, felt too compressed and not different from the written material. Some presenters seemed to be reading the paper they had submitted-word for word-I hope I'm wrong about that.*
- *Speakers (some) repeating or reading their paper we have already read. New contributions or synthesis were good.*
- *Presentations that were unrelated, theoretical, not so grounded in real life examples.*
- *Presenters who were trying to cram too much into their time slot. Presenters whose talks were so abstract or theoretical that they had no real world application. Presenters who told us their resume and work experience.*
- *Some of the presenters are so specialized in their areas of research that they were unable to distill and relate. And I'm a science education trained in science.*
- *Papers delivered this morning-they were all available to read. Should have had more time for discussion.*
- *Uncreative paper presentation-not all presentations were bad, but a few were very uncreative and so academic it was hard for un-academics/filmmakers to relate to.*

#### Afternoon discussions

- *Work sessions did demonstrate people listened this morning but output not well thought out.*
- *Break-out sessions. Too long--especially reporting. Questions too broad.*
- *I thought the breakout questions were not written clearly.*
- *The reporting sections after breakouts ran long.*
- *Redundancy among breakout sessions should be eliminated because there was too much repetition of the same throughout.*
- *Group summaries-not well enough controlled for time*
- *Discussion Group 2 made little sense in terms of meaningful work not a realistic task.*
- *Afternoon break out groups, esp. 2nd one was less focused.*
- *Breakout session 2: won't affect any job running a theatre, selecting films, integrating into other educational programs in the building.*

#### Schedule too long/too much

- *Maybe too long-I'm exhausted!*
- *Only the intensity of the schedule.*
- *Too much in one day-could have forgone the talks at lunch and dinner. Need to pace the day better. Having said this it was very well orchestrated.*

#### Film clips

- *Seeing the films (seen most before).*

#### Other

- *Listening to thank you speeches. Closing perspectives.*
- *Lunch speaker-soft data and would have liked that time to network with table mates.*
- *Lack of attention finance and marketing issues as it relates to project development and forging stronger commitments between producers and exhibitors.*

## 2.6 What did participants feel were the most interesting things they learned from the symposium?

Participants were most interested in information they learned about: new film topics, visual communication research, industry trends, and/or storytelling. A few participants also pointed to new information they learned about producer-museum relations and multiple media platforms.

The majority of participants (74%) identified learning one or more new things of interest from the symposium. Table 14, below, summarizes the categories of responses most frequently mentioned and the percentage of participants offering each response.

Table 14 What did participants feel was the most interesting thing they learned from the symposium	
	(n=62)
New/challenging/controversial film topics discussed	31%
Visual communication research – neuropsychology findings	19%
Industry statistics/trends/opportunities	11%
Storytelling – need for compelling story, characters, images	11%
Producer - museum relations	6%
Multiple media platforms	5%
Other	11%
Left Blank	26%

Although no one theme stood out among participants' responses, the largest group of participants (31%) pointed to information they learned about the new, challenging and/or controversial film topics discussed at the symposium. About one-fifth of the participants (19%) were drawn to the research presented on visual communication, particularly involving findings from the field of neuropsychology. Two smaller groups (11% each) were most interested in information presented on industry statistics/trends/opportunities and storytelling. The remaining participants mentioned themes relating to producer-museum relations (6%), multiple media platforms (5%), other themes (11%) or left the question blank (26%).

Examples of participants' comments follow below.

#### New/challenging/controversial topics

- *Broader perspective on challenges to getting films made on controversial subjects.*
- *How little is known about many of the topics selected as film possibilities.*
- *Topics, genres of interest for distributors and exhibitors.*
- *Potential future film titles i.e., neurosciences*
- *Some film producers pursue topics maybe of great interest to themselves although they may not have any commercial viability. That in itself may be okay.*
- *The big commitment to do something. The need to change. The need to inform. A call to action.*
- *The shift to . . . controversial material is underway.*

#### Visual communication research

- *Brain research. Neurological info on learning.*
- *Neuroscience of the visual.*
- *Intro on visual literacy/perception and relationships to thought.*
- *Mirror neurons.*
- *Science and visual communication*
- *There is scientific evidence that our expectations...our state of mind and anticipation. . affects our responses to stimuli up to 33%.*

#### Industry statistics/trends/opportunities

- *I am new to the field-why exhibitors/funders/film-makers choose to do what they do.*
- *I like the reinforcement/reminder of our important as an industry....*
- *Stats/trends in field*
- *That the GSCA community remains a vital, engaged community.*

#### Storytelling – need for compelling story, characters, images

- *Good stories about real people draw the audience in and allow them to absorb the educational content. Characters must care about their work.*
- *Most everyone thought... storytelling is important.*
- *The shift to storytelling.*

#### Producer – museum relations

- *That museums etc and our industry are undergoing mutual and big change and that it's productive for us to work together to meet the needs of the changing public.*
- *This research suggests that relationships between museums (or films) and audiences require a new account of the self as a symbolic project that is self-acting, more open-ended and reflexive.*
- *The relationships between producers and museums; how they interact and what they both need as collaborators.*

#### Use of multiple media

- *Made me think so much more of opportunities outside the film which can be integrated with the film (lectures, fieldtrips, curriculum)*
- *Think globally in the use of media to get to the public convincing what a film has to offer. Use all media forms to engage the public in life long learning.*
- *Use of additional activities and media to surround film.*
- *Willingness to work in multi-platform modes.*



## 2.7 How valuable did participants find the speaker presentations?

Participants generally agreed that the speaker presentations were of value.



*Courtesy of James Hyder, LF Examiner*

Participants were asked to rate how valuable they found the morning speaker presentations on a scale of 1 (not at all valuable) to 7 (extremely valuable). Table 15 shows the percentage of participants that selected each rating.

Table 15								
How valuable participants found the morning speaker presentations (n=51)								
Not at all valuable	1	2	3	4	5	6	7	Extremely valuable
	0%	4%	4%	8%	28%	43%	14%	

Participants generally found the presentations to be of value (mean rating 5.4, median 6.0, range 2-7).

## 2.8 How did participants feel about the number of speakers and the extent to which they were exposed to new ways of thinking about science communication?

Participants tended to agree that the symposium speakers exposed them to new ways of thinking about communicating science. Participants were generally neutral about whether the symposium included too many speakers.



*Courtesy of James Hyder, LF Examiner*

Participants further rated the morning speaker presentations by indicating how much they agreed or disagreed with 2 statements using a scale of 1 (strongly disagree) to 7 (strongly agree). Table 16 presents the percentage of participants selecting each rating.<sup>13</sup>

<b>Table 16</b>							
<b>Participants' ratings of the morning speaker presentations (n=51)</b>							
	<b>Strongly disagree 1</b>	<b>Disagree 2</b>	<b>Somewhat disagree 3</b>	<b>Neutral 4</b>	<b>Somewhat agree 5</b>	<b>Agree 6</b>	<b>Strongly agree 7</b>
The speakers exposed me to new ways of thinking about communicating science to the public.	2%	0%	2%	4%	31%	37%	23%
The symposium included too many speaker presentations.	12%	18%	14%	10%	22%	16%	9%

<sup>13</sup> Participants were also invited to provide comments on individual speaker sessions. These comments were summarized and presented separately to the project team for internal use and are presented in Appendix 1.

Participants were somewhat divided about whether the symposium included too many speaker presentations (mean 3.9, median 4.0, range 1-7). Participants generally agreed, however, that the speakers exposed them to new ways of thinking about communicating science to the public (mean 5.7, median 6.0, range 1-7). A Mann-Whitney test indicated that exhibitors ( $Mdn=6$ ) had a significantly higher level of agreement with this statement than did producers ( $Mdn=5$ ).  $U=5.20$ ,  $p=.005$ ,  $r=.51$ ). The effect size in this case represented a large effect.

When invited to explain their ratings, a few participants chose to reiterate points raised under the question about what they found least valuable about the symposium, that the presentations seemed to them: too compressed, not sufficiently grounded in the realities of giant screen production, or were too similar to the papers the presenters submitted in the Pre-Symposium Materials to be of additional value to what they already read. Comments included:

- *It would help if the presenters did more homework on the realities of giant screen production and exhibition.*
- *A few too many speakers-also lack of a business model speaker was evident.*
- *Overall, while passion, interest, enthusiasm was present, the business aspect of reality of making these films missing. Wanted to learn more about effective ways to present science ideas, not what to present ways to take science subject matters and have them make it to big screen.*
- *The morning presentation was interesting but disjointed. Also, several were identical to their papers so why read and develop questions if no time to ask.*
- *Wish speakers had more time. They were too rushed to share detail that could have been new and interesting.*
- *In general I think the speakers needed more prep/polish time so that they: 1) didn't go over paper content. 2) used PowerPoint more effectively. 3) kept punchier in their 12 minute delivery. I loved the cross-section of speakers and their varied topics-very stimulating!*

## 2.9 How did participants rate the afternoon discussion sessions?

Participants generally agreed that they enjoyed participating in the discussions and that the discussions effectively considered the issues they were designed to address. Participants tended to be neutral on the issue of whether more time should have been set aside for participants to relate the information presented to their own experiences and needs.



*Courtesy of James Hyder, LF Examiner*

Participants rated the afternoon discussion sessions by indicating how much they agreed or disagreed with four statements, using a scale of 1 (strongly disagree) to 7 (strongly agree). Table 17 presents the percentage of participants that selected each rating.

<b>Table 17</b>							
<b>Participants' ratings of the afternoon discussion sessions (n=51)</b>							
	<b>Strongly disagree 1</b>	<b>Disagree 2</b>	<b>Somewhat disagree 3</b>	<b>Neutral 4</b>	<b>Somewhat agree 5</b>	<b>Agree 6</b>	<b>Strongly agree 7</b>
I enjoyed participating in the group discussions.	0%	0%	6%	4%	20%	40%	31%
Our "Breakout Session 1" group discussion effectively considered issues of film development guidelines.	0%	6%	2%	18%	22%	40%	12%
Our "Breakout Session 2" group discussion effectively considered issues of science subject area and goals.	2%	4%	2%	8%	19%	40%	25%
I would have preferred more time set aside for participants to relate the information presented to their own experiences and needs.	8%	18%	12%	18%	24%	14%	8%

Participants largely agreed that they enjoyed participating in the group discussions (mean 5.9, median 6.0, range 3-7). They also generally agreed that “Breakout Session 1” effectively considered issues of film development guidelines (mean 5.2, median 6.0, range 2-7), and that “Breakout Session 2” effectively considered issues of science subject area and goals (mean, 5.6, median 6.0, range 1-7). Participants tended to be more divided about the issue of whether they would have preferred more time set aside to relate the information presented to their own experiences and needs (mean 4.1, median 4.0, range 1-7).

When invited to explain their ratings, a few participants pointed to areas that they felt could have been improved, including that the discussions: lacked guidance, covered too much material, were too general, had too little time set aside for audience brainstorming or involvement, or were misdirected as they didn’t address how filmmakers apply information presented about the use of “story” in films. Their comments included:

- *I think this would have been more effective as a 2-day seminar. There was so much to discuss.*
- *Workshops (breakout sessions) need to be more guided so we lose less time*
- *Too much speech making and not enough time for group brainstorming. Should be more audience involvement/ interactions.*
- *I think the breakout sessions lead filmmakers in the wrong direction. The films as we described them (new ideas) won't work without significant evolution through the application of the "story"*
- *Breakout session 2 felt too general.*



*Courtesy of James Hyder, LF Examiner*

## 2.10 Did participants think that the symposium format provided the right balance of speaker presentations vs. group discussion?

Most participants indicated that the symposium struck the right balance of speaker presentations versus group discussion.



Courtesy of James Hyder, LF Examiner

Participants were asked whether they felt the symposium format offered the right balance of speaker presentations versus “break-out” discussion sessions. As Table 18 shows, most participants (69%) felt that the symposium format provided the right balance. The remaining participants were nearly evenly divided between thinking there was either too much emphasis on speaker presentations (16%) or break-out sessions (13%).

Table 18 Whether participants felt the symposium format offered the right balance of Presentations vs. discussion	
	(n=62)
Just the right balance	69%
Too much emphasis on speaker presentation	16%
Too much emphasis on break-out sessions	13%

When participants were invited to explain their response, they tended to: focus on the schedule being too densely packed, suggest revisions to the presentation and discussion formats, or offer general praise for the event's two-part format. Participants' comments follow below.

#### Too much time/information in general

- *But needed 2 days.*
- *But too much information for one day.*
- *Doesn't allow to get things done.*
- *Good balance. Just a lot of content in a single day.*
- *Time was too intense and tiring.*
- *Not all content was relevant.*
- *Too many topics.*
- *Too much either way would have lead to redundancy.*
- *None of the above. There was too much of speakers and breakout needed to be stretched to two days or relaxed to allow more creative thinking.*
- *Too much sitting.*

#### Suggestions for speaker presentations

- *Speakers set 1, breakout 1, speakers set 2, then breakout 2.*
- *Encourage speakers to expand upon articles at repeat.*
- *Would have enjoyed more Q and A with speakers.*
- *Did speakers on panels have questions of each other?*
- *Fewer of the strongly academic presentations- a few were much too advanced for the 12 minutes they had.*
- *Give the speakers more time so maybe they can relate to the industry better.*

#### Suggestions for breakout discussions

- *Way too long report out periods.*
- *A big group with too many reports and repeating the same thing.*
- *Not all addressed ideas were useful to breakout sessions/ breakout sessions most interesting and productive,*
- *Need to integrate presentation content of discussion... Too long in a.m. without discussion.*
- *The questions were written vaguely.*
- *Summaries could have been shorter.*

#### Praise for both

- *Both formats provided value.*
- *Excellent run symposium.*
- *Good choice of information input vs. active participation.*
- *Naturally divided up-worked well.*
- *The format worked fine.*
- *We had time for both options.*
- *Very well planned, allowing participants to be actively involved by giving group reports!*

## 2.11 Did participants have suggestions for a different format that might work even better?

**Most participants did not suggest the project team consider a different format for the event, although some suggested changes to the balance, length, or focus of the speaker presentations or discussion sessions.**

Participants were also invited to suggest a different format that might have worked even better. Most participants did not suggest the project team consider a different format for the event, although nearly one-quarter (23%) suggested revisions to the balance, length, or focus of the speaker presentations or discussion sessions, as in:

- *Less speakers with time to develop provocative ideas expanded by having few presenters.*
- *Fewer speakers and limit to 5 min. each, more time for breakout groups, or maybe panels instead of individual speeches.*
- *I think the speakers should not simply read what was already given to us in the materials, but should offer insights on it.*
- *Some of the speakers may have related to the audience better if they were not as removed physically.*
- *Perhaps cut down speakers in morning by 1 or 2 to give more time.*
- *3 less papers/1 more breakout discussion or 3 less papers and education/learning session*
- *A few (3-4) speakers break out sessions-followed by plan? Discussions.*
- *Limit report out time.*
- *Interest grouping/breakout-e.g. a breakout session for producers, marketers, etc.*
- *More discussion/forum in the morning. Cut out repetition of papers.*
- *Perhaps separate out topics and then discussion groups. Speakers talk and then we discuss more.*
- *Shorter reports. More focused questions and more variety. Repetition in reporting was tedious.*
- *Format okay. Perhaps afternoon sessions that tied more closely to morning.*
- *Same but shorter, start later finish same time.*

A few participants (5%) made suggestions that related to the event's preparation, as follows:

- *Better structured pre-conference materials smaller number of e-mails (pre-conference) with more focus.*
- *Have participants be able to pre-submit questions to presenters that could be addressed during their presentations.*
- *Introductions done online for the breakout groups prior to the symposium.*

Other comments included:

- *You needed more evaluation of educational objectives of already shown films.*
- *Begin with a visionary context.*
- *No-you did a great job. Only suggestion is DVD's of films in discussion would be great to see ahead of time.*
- *I liked the format very much. Include filmmakers who won lifelong film awards - ask one or two to present.*
- *Just more time.*



## 2.12 What actions did participants expect to take after the symposium?

Participants generally expected to question, discuss, think about, apply, and disseminate information provided at the symposium. Participants also expected to complete the follow-up survey that would be sent to them via email. Participants tended to be more divided, however, about their likelihood of participating in or starting discussions about giant screen issues on the new GSCA listserv.

The Symposium Preparatory Materials suggested specific actions that participants could take after the symposium. Participants were asked to rate their level of agreement or disagreement on a scale of 1 to 7 of their likelihood of taking specific actions. Table 19 shows the percentage of participants that selected each rating.

**Table 19**  
**Participants' expectations of their likelihood of taking actions after the symposium (n=51)**

	Strongly disagree 1	Disagree 2	Somewhat disagree 3	Neutral 4	Somewhat agree 5	Agree 6	Strongly agree 7
I will complete the survey that will be sent to me six months after the symposium	0%	0%	0%	4%	4%	43%	49%
I will think about ways that I can enhance the potential of giant screen for connecting science in society.	0%	0%	0%	4%	16%	45%	35%
I will consider ways to implement what I have learned at the symposium.	0%	2%	2%	6%	28%	43%	14%
I will disseminate information to others in the industry or in my workplace who could not attend.	0%	6%	0%	4%	10%	51%	29%
I will continue to question and discuss the symposium content.	0%	6%	20%	0%	20%	53%	22%
I will participate in or start discussions about giant screen issues on the new GSCA listserv.	4%	4%	6%	41%	18%	22%	6%

Participants generally agreed that they would both complete the follow-up survey subsequently emailed to them (mean 6.3, median 6.0, range 4-7) and think about ways that they could enhance the potential of giant screen for connecting science in society (mean 6.1, median 6.0, range 4-7). Participants also generally agreed that they would: consider ways to implement what they learned at the symposium (mean 5.8, median 6.0, range 2-7); continue to question and discuss the symposium content (mean 5.8, median 6.0, range 2-7); and disseminate information to others in the industry or in their workplace who could not attend (mean 5.9, median 6.0, range 4-7). Participants were somewhat divided over whether they would participate in or start discussions about giant screen issues on the new GSCA listserv (mean 4.4, median 4.0, range 1-7).

When invited to explain their ratings on the above questions, a few participants noted that they were unlikely to participate in GSCA listserv discussions because they were an “outsider” or not a member of GSCA, as in *I'm an outsider with no access to the list serve at present* or *Not a member of GSCA*.

## 2.13 How did participants expect to apply what they learned at the symposium?

**Participants expected to apply what they learned at the symposium by: sharing, discussing, or collaborating with others; thinking more deeply about or researching topics covered; pursuing more proactive marketing/outreach; and/or exploring new film topics.**

The majority of participants (72%) were able to identify at least one specific way they expected to apply what they learned at the symposium. Table 20, below, summarizes the categories of responses most frequently mentioned and the percentage of participants offering each response.

<b>Table 20</b>	
<b>How participants expected to apply what they learned at the symposium</b>	
	<b>(n=62)</b>
Share/discuss/collaborate with others – <i>within and across media platforms</i>	32%
Seek more knowledge/think more deeply	18%
Pursue more proactive marketing/outreach	13%
Explore new film topics	13%
Left question blank	27%

One-third (32%) of the participants expected to apply information learned by sharing, discussing, or collaborating with others. Just under one-fifth (18%) expected to pursue more knowledge or think more deeply about topics covered at the symposium while 13% each expected to pursue more proactive

marketing/outreach or explore new film topics. Just over one-quarter (27%) left the question blank. Examples of participants' comments follow below.

Share/discuss/collaborate with others within and/or across media platforms

- *I will endeavor to increase my connection and feedback with others in the producer-distributor-exhibitor continuum. The dialogue will be continued.*
- *I will share the inf. with my team and our decision making processes will include many topics, not only for the films we choose, but for our exhibits and educational experiences.*
- *I will share this info with my coworkers and my colleagues in other theatres that did not attend. I will be in touch to receive all the information we have generated today and the new to come.*
- *Share with my staff. Use articles as a point of common discussion about GS films and other areas such as exhibitions.*
- *Sharing it with professional colleagues.*
- *The symposium will allow me to better participate in discussions regarding films coming into the market place.*
- *I will use the idea of self as symbolic self-acting project, as opposed to an object of discipline, in a paper I am writing at present, to present to my colleagues. I think this is an important concept of our society to embrace. We have enough of discipling people. Time to engage each other to be more individually responsible.*
- *I will work more closely with our film producer in provided input and hopefully be able to support more audience research.*

Pursue more knowledge/deeper thinking

- *Deeper thinking about the films and learning.*
- *I am going to research the mirror neuron research, and compare to some other areas of neuroscience/psychology research.*
- *I will always respect engineering as working scientist's and I have a new view and respect for lifelong learning.*
- *I will give more considerations to topics used on education/science relevance vs. box office draw.*
- *I will learn more about A. M. Barry's work and how it relates to learning.*

Pursue more proactive marketing/outreach

- *Approach on the B2B level of the industry.*
- *Be more proactive in pushing ideas in other GSCA efforts.*
- *Develop entire marketing/outreach program for my upcoming film/new films*
- *Go after projects that up to now. I felt there was no market or interest-as to biology, physics, nanotechnology, neural network robots.*

Explore new film topics

- *Explore new film topics.*
- *Suggesting film topics-i.e. new opportunities for large format films.*
- *Helpful in thinking about topics, issues, and community involvement for my future films.*
- *The need to push for expanding topics that push controversy.*

## Part 3: Follow-up Findings

To explore the longer term impact of the symposium, participants were invited to complete a follow-up online survey approximately 9 months after the event.<sup>14</sup> The survey invitation was sent via email by the symposium organizer who had also served as the event contact person. The invitation informed participants that their input was an important part of the feedback being gathered for the symposium team and that the evaluation was funded by the National Science Foundation. The invitation further explained that the survey was hosted on an independent evaluator's website and that participants' responses to the survey were anonymous and would be combined with those of other participants and then reported in the aggregate. To help refresh participants' memory of the event, a copy of the agenda was included on the survey welcome page.

### 3.1 Participant information

A total of 30 participants completed the follow-up questionnaire, representing almost half (48%) of those who completed a pre- and post-event questionnaire on the day of the symposium. Table 21 summarizes the demographic and background information for this group, which included:

- Somewhat more males (60%) than females (40%).
- A wide range of ages, spanning 29-69 years, with a mean age of 51.
- A racial distribution comprising 90% Whites, 3% Asians, and 3% mixed race participants. Ten percent (10%) of the participants were of Hispanic Origin.
- A comparable proportion of producers (37%) and exhibitors (33%), with smaller numbers of educators (10%), distributors (7%), students (10%) and other industry representatives (9%).

Demographic/ background factor	Categories	(n=30)
<b>Gender</b>	Male	60%
	Female	40%
<b>Age Group</b>	Age range	29-69
	Mean	51
<b>Race/Ethnicity</b>	White	90%
	Asian	3%
	Other	3%
	Hispanic Origin	10%
<b>Industry segment represented</b>	Producer	37%
	Exhibitor	33%
	Educator	10%
	Distributor	7%
	Student	10%
	Other	9%

<sup>14</sup>Originally participants were informed on the post-event survey that they would be sent the online request in 6 months (see page 33). After additional discussions with the symposium organizers, however, a decision was made to extend the timeline to 9 months to allow for longer-term feedback and for participants to have an opportunity to access symposium related resources that subsequently became available on the GSCA website. It is possible that waiting an additional three months contributed to a lower response rate than would have otherwise been achieved at 6 months.

### 3.2 Which of the follow-up activities suggested in the *Symposium Preparatory Materials* did participants pursue since attending?

Three-quarters of the participants reported that they: questioned or discussed the symposium content; considered ways to implement what they learned; and thought about ways that they could enhance the potential of giant screen films for connecting science in society. One-half or less of the participants said they disseminated information to others or networked with fellow participants.

Participants were asked to check which, if any, of the activities listed in Table 22, they did since attending the symposium. About three-quarters of the participants (73%) reported that they did three of the five activities, including: question or discuss the symposium content; consider ways to implement what they learned at the symposium and; think about ways that they could enhance the potential of giant screen films for connecting science in society. Half of the participants (50%) said they disseminated information to others within their industry or workplace who could not attend while two-fifths (40%) reported networking with fellow symposium participants.

Table 22 Follow-up activities participants pursued since attending the symposium	
(n=30)	
Questioned or discussed the symposium content	73%
Considered ways to implement what I learned at the symposium	73%
Thought about ways that I could enhance the potential of giant screen films for connecting science in society	73%
Disseminated information to others within the industry or my workplace who could not attend.	50%
Networked with fellow symposium participants	40%

Participants were also invited to comments on the activities listed in the table, to which several elaborated on why they did or didn't do each activity, as follows.

#### Questioned or discussed

- *Of course, there was some discussion, but probably not enough to warrant a "yes" response.*
- *I thought quite a bit about the Symposium immediately after the event, but then not so much after that as I lost touch with the people who attended, and got busy with other things. But I'm still interested in the topic and even would like to conduct research on it (I'm an academic rather than an industry person).*

- *Information from the written material as well as the discussions have helped to frame our discussion here not only about films but exhibition related ideas and partnerships as well.*

#### Considered ways to implement

- *As a vendor or supplier I am not in a position to utilize the data literally. I can see how it affects my clients however and I am interested in better understanding client needs so I can better fulfill their practical needs as it relates to my products and services.*
- *I probably would have done the things I did without having attended the symposium. I did not find the symposium to be set up for implementing new learning - it was more of an intellectual exercise.*

#### Thought about ways to enhance potential of giant screen films

- *Somehow, and despite the fine quality of the papers presented, we need to review what happened last year and understand why the impact of the workshop was not immediate. In reviewing the papers for this survey I can see why. They were useful and in a number of cases extremely valuable to me, but they were devoid of context that would engage the GSCA membership. By this I mean the rapid transformation of the medium which has created a refocusing on what audiences want to see and will pay rather than what they should see for free. So while the need to focus on science and society issues and engage the public was taken as the new road for Giant Screen Films to travel, this needs to be re-examined in the aftermath of the advent of a major Recession. I agree with Cameron who concluded that the next three years will be the transition to a new era in museology. Felice Frankel's call to refocus on science as a visual treat and gateway to understanding needs to be explored on Giant Screens with truly High Resolution and exciting Imagery. Lastly, Lombard's call for "producers [to] use the audience's goal of entertainment to evoke telepresence with a vivid and impactful experience" they can meet their mission to engage the public in the worldview that includes science and technology as a vital part of post-modern culture.*

#### Networking

- *The networking has been brief, but has opened up opportunities for the future. The information shared in my workplace has been incorporated into another NSF grant-funded project -- actually taking some of our conversation at the symposium into action.*
- *This is my nature and the nature of my positions. I've actually kept up with three people who I'd not met before. It was a very useful symposium--thank you.*

### 3.3 To what extent did participants follow-up on or apply what they learned about at the symposium?

All of the participants reported that they followed-up on or applied something they learned about at the symposium. The topics participants most frequently chose to follow-up on were not necessarily the same ones they chose to apply.

On the post-event survey completed at the symposium, participants described the topics that they found most interesting to learn about. A total of 5 topics were evident across their responses. On the 9 month follow-up survey participants were then asked whether they had a chance to either follow-up on any of these topics (e.g., seek more information, discuss the topics with others) or apply anything they learned. Table 23 presents the percentage of participants that followed-up on a topic and Table 24 presents the percentage that applied something learned.

Table 23 Extent to which participants followed-up on topics learned about at the symposium	
Topics:	Followed up (n=30)
Using multiple media/exhibits/ programs to extend the learning value of films	37%
Optimizing producer-museum relations/collaborations	30%
Using storytelling to inform filmmaking	27%
Using visual communication research to inform filmmaking	23%
Exploring new, challenging, and/or controversial film topics	20%

Table 24 Extent to which participants applied what they learned about at the symposium	
Topics:	Applied (n=30)
Using storytelling to inform filmmaking	37%
Exploring new, challenging, and/or controversial film topics	37%
Using multiple media/exhibits/ programs to extend the learning value of films	20%
Optimizing producer-museum relations/collaborations	17%
Using visual communication research to inform filmmaking	17%

As the color-coded categories in Tables 23-24 help illustrate, the topics that participants most frequently chose to follow-up on were not necessarily the same ones that they chose to apply. The top two topics participants chose to follow-up on were multiple media/exhibits/programs to extend the learning value of films (37%) and optimizing producer-museum relations (30%). The top two topics that participants chose to apply were using storytelling to inform filmmaking (37%) and exploring new, challenging, and/or controversial film topics (37%). Other topics were pursued by roughly one-quarter or less of the participants, as summarized in Tables 23 -24.

Participants were also offered an opportunity to elaborate. Their comments follow:

- *This is tough information to gather, because it asks for a direct 1-to-1 connection. (After re-reading my symposium notes I picked up the phone and optimized my museum producer relationships.) A tall order. I only went back through my notes once. I never sit down and review them prior to working on a script. But to some extent, some of those ideas must have seeped into the primordial soup of my subconscious mind, where they interact with other ideas already swimming around in there.*
- *Checked out the book "Shivers Down Your Spine: Cinema, Museums, and the Immersive View (Film and Culture Series)" from the Wayne State Library to learn more about the immersive experience and using it to communicate educational content. Added film related displays in cabinets located in our IMAX entrance lobby. This included a large sturgeon replica and recovered shipwreck items that we connected to the Mysteries of the Great Lakes film. Other Topic: Racial/Ethnic diversity physically shown in films so that all audiences are drawn into the film, especially minorities that have not been well represented in most IMAX films.*
- *Exploring what form and content (stories, topics) make science 'come to life' for viewers.*
- *I am not a filmmaker, so some of these do not apply.*
- *Many topics were geared towards filmmakers, so not always entirely applicable to me as a theatre marketer, but I agreed with and supported many of the ideas raised by speakers.*



### 3.4 In which industry areas did participants apply what they learned at the symposium?

**Most participants reported that they applied something they learned from the symposium in at least one industry area. The top two areas participants applied their learning in were film development and production and public education programs.**

Participants were asked to identify the industry areas in which they had a chance to apply something they learned from the symposium. Most participants (87%) reported an application in at least one industry area. As Table 25 shows, the most frequently mentioned areas were film development or production (47%) and public education programs (43%).

Somewhat smaller groups of participants pointed to other areas, including: exhibit development, renovation or expansion (23%), staff development/enrichment (20%), marketing (20%), or K-12 student programs (17%). Less frequently participants identified: K-12 teacher education programs (13%), distribution (13%), volunteer/docent training (3%), or other areas (10%).

A small percentage of participants (13%) indicated they hadn't yet applied anything learned at the symposium, although all reported that they had learned something new.

Participants were also invited to identify other industry areas where they applied something they learned, to which a few participants responded:

- *Forming a new giant dome production consortium.*
- *Shared through a consulting work with others in a position to use the material.*
- *Social networking via web.*

	(n=30)
Film development or production	47%
Public education programs	43%
Exhibit development/renovation/expansion	23%
Staff/development/enrichment	20%
Marketing	20%
K-12 student programs	17%
K-12 teacher education programs	13%
Distribution	13%
Volunteer/docent training	3%
Haven't yet applied anything learned	13%
Other	10%
Didn't learn anything new	0%

### 3.5 What types of challenges or obstacles did participants encounter in applying what they learned at the symposium?

**Most often participants cited financial constraints followed by competing institutional priorities or time constraints as the reasons they didn't apply something learned from the symposium.**

Participants were asked to identify any challenges or obstacles they encountered in applying what they learned from the symposium, choosing from the options listed in Table 26.

	(n=30)
Financial constraints	60%
Competing institutional priorities	40%
Time constraints	37%
Other	13%
No obstacles/challenges	10%
Resistance to science themes	0%

Most often participants pointed to financial constraints (60%) followed by competing institutional priorities (40%) or time constraints (37%). Just one-tenth (10%) of the participants hadn't encountered obstacles/challenges while 7% hadn't yet applied anything learned at the symposium. Another 7% mentioned other constraints including:

- *No support coming from the management.*
- *Reality is messy.*
- *Resistance to getting "involved" in production.*
- *The symposium did not lend itself to application for me.*

### 3.6 What did participants do with the Symposium Preparatory Materials after attending the symposium?

Just under half of the participants said they filed the Symposium Preparatory Materials away after attending the event while one-third shared them with others and one-quarter read or referred back to them. A few participants used the materials to write articles or briefs.

Table 27 shows the various uses participants made of the Symposium Preparatory Materials after attending the symposium. Most participants did one of three things: file them away (47%), share them with others (33%), or read or refer back to them (27%). The remaining participants used the materials to write an article or brief about the event (7%) or lost the materials (7%).

<b>Table 27</b>	
<b>What participants did with the Symposium Preparatory Materials after attending</b>	
	(n=30)
Filed the materials away	47%
Shared the materials with others	33%
Read or referred back to the materials	27%
Lost the materials	7%
Wrote articles/briefs	7%
Never received the materials	0%
Don't remember the materials	0%

### 3.7 Upon reflection, what did participants share about the extended impact of the symposium on them or their work?

**The majority of participants didn't reflect on the extended impact of the symposium, but rather: focused on what stood out for them about the event; suggested follow-up activities to reinforce its impact; or recommended revisions to the symposium's use of lecture or discussion.**

When offered a chance to reflect on the extended impact of the symposium, just over half (53%) of the participants did not answer the question. Just over one-quarter (27%) focused on what still stood out for them about the event, with several indicating that it was thought-provoking and raised important and timely ideas. Comments included:

- *A quick session would not have been sufficient, the intense day long approach allowed me to submerge myself in the topic. I was given the opportunity to spend enough time on the subject to really reflect on it and how it relates to my everyday job.*
- *As an academic I don't think the event was designed for me, but it was a valuable experience that I know has affected my thinking in productive ways and I'd like to participate in related events in the future.*
- *I found it useful to review the five clips from past winners. ("Bugs" looked much the weakest, and it was useful to see why.)*
- *I believe it was a very valuable addition to the GSCA conference and for me set the mental tone for the rest of the conference. Worth doing something like this again.*
- *I greatly enjoyed the Symposium, and sincerely appreciate the opportunity to attend. I used several Symposium ideas, such as Cameron's work with Bauman, while writing my MFA thesis.*
- *The conference was very thought provoking and was extendable beyond films. Really liked the innovative thinking in how to communicate science in the visual media.*
- *The ideas raised in the symposium are in alignment with the approach our theatre has adopted for programming films: dual support for sound educational/ scientific titles as well as targeted scheduling of feature film product outside school visit hours. We have achieved a happy balance, making for a commercially successful theatre that maintains a genuine philosophical commitment to lifelong learning.*
- *The Symposium aired a number of important issues and for that it was timely and useful. I continue to be concerned, however, that many of the institutional theaters are wary of or resistant to strong science content in giant-screen films, especially that which is controversial or "political." I believe that subjects such as climate change and species extinction are being avoided (or at least dumbed-down) due to a perception by many theaters that box-office will be impacted negatively by film on these and other critical topics.*

One-fifth of the participants (20%) instead suggested revisions to the symposium, either relating to the use of lecture and discussion at the event or adding possible follow-up activities designed to reinforce its impact, as follows:

- *For young people, I suggest offering some type of mentorship/shadowing opportunities post-conference. Much of what we learned is impossible to implement on a small budget/start-up phase. Therefore, some closer collaboration and avenues for post-conference work-related mentoring would be useful in connecting the dots.*

- *For me, there was an irony surrounding the exercise in which we got together in small groups to brainstorm script topics. Many Giant Screen films suffer from this kind of film-by-committee mentality. Theater directors complain that the films lack freshness, yet this exercise gave positive reinforcement to the concept that film-by-committee is the way to go. Not surprisingly, most of the topics that emerged were predictable, because that group-think dynamic encourages predictable ideas.*
- *I thought there was not much connection between the morning and the afternoon. I would have liked to have seen activities in the afternoon geared toward application of the morning's topics.*
- *The Symposium completed an ongoing trend toward thinking about informal science learning across silos -- i.e., seeing the work as a continuum with many players who should be far more deliberate in working together. I think this message needs to be further shared in multiple settings.*
- *These kinds of conferences can have an even greater impact if the organizers prod or nudge participants to follow up on ideas for new films, research, etc. generated at the conference.*
- *Too much lecture up front. The discussions were the most important. Thanks.*

### 3.8 Did participants have suggestions for how GSCA could improve the next symposium to better serve their industry area?

**Relatively few participants recommended improvements for future symposiums. Those who did most often suggested a greater emphasis on practical applications as opposed to academic perspectives or recommended broader dissemination and sharing of the symposium content.**

Participants were invited to offer any suggestions for how GSCA could improve the next symposium to better serve their industry area. Most often participants suggested a greater emphasis on practical applications vs. academic perspective (17%), as reflected in the following comments:

- *A broader range of speakers that were possibly not all so academically focused. Still, the opportunity to hear from speakers of the caliber of those presented at the symposium was great. A thoroughly enjoyable day.*
- *Incorporate the members of GSCA as experts in their field so that the presentations, workshops, etc. could be of less academic and more practical utility.*
- *Some of the speakers were too abstract for my taste. (But maybe those were the ones others liked best.) On the one hand, it helps to bring in the perspective of those from outside the Giant Screen industry. On the other hand, if those perspectives are not informed by the challenges of our industry faces, there may be too few points of "connection." I wonder if there's a way to guide the speakers in this regard, well in advance, to tailor their presentations more to our industry, while still preserving the freshness of their main message.*

A couple of participants (7%) suggested broader dissemination and sharing of content, as in:

- *Summaries of content should be shared with other disciplines at their annual meetings and workshops. For example, one rarely hears about the work and impact of the GSCA at the Annual Meeting of the American Association of Museums.*
- *Broader dissemination of papers and conference content. For example, a majority of GSCA institutional members are also members of ASTC, but I don't recall seeing any discussion of the symposium (other than a notice that it would be held) in Dimensions, the ASTC newsletter.*

Other suggestions included:

- *Take into account opinions and specific situations of developing countries.*
- *Watch, analyze, and critique more films and/or excerpts to get a sense for concrete successes failures within the genre.*
- *More honest input if possible from both theaters and filmmakers about the above points.*
- *Case studies of projects implemented after the Symposium would be great*
- *Good use of audio visuals (pictures/video/etc.).*
- *Perhaps you could send periodic questions asking how was the information used and how would the information gleaned can be helpful. It is always useful to help people along in the interim before the next conference.*

## Conclusions

In September 2008 the Greater Screen Cinema Association (GSCA) hosted a one-day symposium: *Connecting Society with Science: the Greater Potential of Giant Screen Experiences*. Funded by the National Science Foundation (NSF), the symposium was held in Jersey City, New Jersey, one day ahead of the GSCA International Conference and Trade Show. The symposium was created as a professional development experience for giant screen industry representatives focused on science-related opportunities and challenges within the giant screen film industry. The event organizers further sought to introduce participants to multi-disciplinary perspectives on filmmaking from the fields of cognitive neuroscience, education, and science communication.

To address the extent to which the symposium accomplished the professional audience goals described to the NSF as a condition of funding, the grant provided for an independent evaluation firm specializing in the evaluation of science media to conduct an on-site and follow-up evaluation. The evaluation strategy focused on inviting attendees of the event to complete pre- and post-event questionnaires on the day of the symposium, and a follow-up online survey nine months later. The evaluation also incorporated the use of secondary data, including participants' online registration forms completed prior to the symposium, the Symposium Preparatory Materials sent upon receipt of registration, and other planning materials developed for the event.

The evaluation findings are summarized below in three parts: Part 1: Pre-Symposium Findings, Part 2: Post-Symposium Findings, and Part 3: Follow-up Findings. The report ends with a discussion of these findings.

### Summary of findings

A total of 62 participants completed both pre- and post-event questionnaires on the day of the symposium. Based on the 95 individuals who registered for the event, the approximate response rate is 65%. As the final number of symposium attendees wasn't confirmed, however, the *actual* response rate could be higher if more individuals registered for the event than attended. The demographic and background information for this participant group included: somewhat more males (58%) than females (42%), participants of various ages, ranging from 24 -71 years, with a mean age of 49; a racial distribution comprising 89% Whites, 3% Asian, and 2% African-Americans, with 5% of the participants being of Hispanic Origin; and a close balance of producers (37%) and exhibitors (32%), with fewer educators (11%), distributors (9%), students (8%) or other industry representatives (9%).

Note that within the survey participant group (n= 62), only 51 had matching pretests and posttests identified by code phrase/password (and in 1 case by writing comparisons). So as to not discard the feedback from the remaining 11 participants whose codes could not be matched with certainty, their responses were included in the analyses of questions that did not apply subgroup or pre to post-event analyses. In cases where these statistics were applied, however, the evaluation sample was n=51.

## Part 1: Pre-Symposium Findings

This section summarizes participants' responses to questions about: how they learned about the symposium, whether they attended the 1999 symposium which inspired the 2008 event, how valuable they found the materials provided to them ahead of the event, and whether they managed to complete activities recommended in the materials prior to attending.

- **How did participants learn about the symposium?** Most often participants pointed to an announcement that was emailed to GSCA members (28%), posted on the GSCA website (20%) or distributed via the GSCA e-news (18%). Somewhat less often participants cited: a work or school source (15%), the Lifelong Learning Committee (12%), a direct invitation (8%), or an email announcement to the ASTC listerv (3%).
- **How many 2008 symposium participants also attended the 1999 symposium *Giant Screen Films and Life Long Learning*?** Most 2008 symposium participants (80%) did not attend the 1999 symposium. Nearly one-fifth (18%), however, did participate, and 2% could not remember. To explore why such a large percentage of participants did not attend the 1999 symposium, the follow-up evaluation conducted 9 months after the symposium asked participants to identify their reason(s) for not attending. Although the follow-up was completed by just half of the initial participant group (n=30) a comparable percentage of participants in each case reported not attending the 1999 symposium (80% initial survey group, 73% follow-up survey group). Participants' main reason for not attending was that they weren't part of the industry at the time (40%). Just over one-quarter (27%) said they didn't know about the event, while 13% offered other reasons.
- **How valuable did participants find the Symposium Preparatory Materials?** Participants generally found value in the materials. Three-fifths of the participants (59%) read at least 1 of the 9 Advance Papers provided in the materials. Among those who did not read anything (41%), the main reason given was lack of time (18%), followed by not receiving the materials (11%), receiving the materials too late (6%), registering last minute (5%), or other reasons, such as forgetting to or not realizing their relevance. Participants were also asked to indicate which papers they read and formulated a response to as suggested in the Symposium Preparatory Materials. While between one-third and one-half of the participants (35% - 54%) said they read a given paper, less than one-seventh in each case (5%- 14%) reported actually forming a response.
- **To what extent did participants engage in other suggested activities?** When asked if they had done three additional activities listed in the Symposium Preparatory Materials beyond reading the Advance Papers, 98% of the participants said they had done at least one activity, with only one participant explaining a last minute registration as the reason for not doing any activities. Four-fifths (82%) of the participants familiarized themselves with the schedule while two-thirds (66%) brought the Symposium Preparatory Materials to the symposium. One-fifth (22%) listed questions and other thoughts that arose from reviewing the Advance Papers.



## Part 2: Post-Symposium Findings

This section summarizes participants' responses to questions about their self-assessed knowledge of the symposium's main topic and their assessment of: the event's organization and usefulness; the scope of their involvement in the symposium; the things they found most and least valuable about the symposium; the relative value of the presentations and discussion sessions; the most interesting things they learned from the symposium; the ways in which they felt the symposium format could be improved; and how they expected to apply what they learned from the event.

- **How much knowledge did participants feel they had about the potential of giant screen films to communicate science to the public before vs. after the event?** Participation in the symposium significantly increased attendees' self-assessed knowledge of the potential of giant screen films to communicate science to the public.
- **How well run and useful did participants find the symposium?** Participants generally agreed: that the symposium was well run, that attending the symposium was a good use of their time, and that they acquired knowledge at the symposium that would have been difficult to obtain without being there in person. Participants also agreed, although not quite as consistently, that they received sufficient information about the symposium agenda before attending. When invited to comment on their ratings, a few participants observed that they would have liked to receive the symposium materials earlier.
- **To what extent were participants involved in the symposium as suggested in the symposium Preparatory Materials?** The majority of participants engaged in the activities outlined in the Symposium Preparatory Materials as suggested. Most reported that they: networked with others while at the symposium (87%); discussed information presented during the break-out discussions (81%); and that their thinking about best practices was broadened, deepened, or challenged (74%). A much smaller percentage (16%), however, said they asked questions about the information presented during the formal Q&A periods, however it is important to note that the question periods were conducted in the large group setting with limited time set aside for Q&A, and therefore limited opportunities for participants to ask questions.
- **What did participants find to be the most valuable part of the symposium?** One-half (52%) of the participants found the morning presentations to be most valuable. Most of these participants referenced the presentations as a whole, appreciating that they were diverse in viewpoint, interesting, or thought-provoking, although some specifically praised the presentations on visual communication and brain research. One-third (34%) of the participants found the afternoon discussions particularly valuable given that they reinforced information they learned from the presentations, exposed them to different viewpoints, and/or enabled them to brainstorm/think ahead to future applications in their own work. Finally, one-tenth or less of the participants mentioned networking (10%) or reading the Symposium Preparatory Materials (8%).
- **What did participants find to be the least valuable part of the symposium?** About one-quarter (27%) of the participants found some aspect of the morning presentations to be least valuable. Most often these individuals observed that the presentations: were pitched as too academic or theoretical, were too dense or crammed with content; lacked relevance to their area of industry; or were too similar to the Advance Papers they provided for the Symposium Preparatory Materials. One-fifth (21%) of the participants, meanwhile, focused on something related to the afternoon discussion sessions. Most

often these participants noted that the report-outs took too long, that the discussion questions were hard to interpret or follow, or that the two discussion sessions seemed redundant. While most of these participants did not focus on a specific session, those who did focused on the 2<sup>nd</sup> session, here again questioning its relevance or the clarity of the guiding questions. Finally, two smaller groups of participants (8% each) pointed to other aspects of the symposium, including that the day's schedule was too long or too dense and that viewing the montage of film clips was redundant since they were already familiar with the films. A few others pointed to other aspects of the symposium (8%), or left the question blank (10%).

➤ **What did participants feel were the most interesting things they learned from the symposium?**

The majority of participants (74%) identified learning one or more new things of interest from the symposium. Although no one theme stood out among participants' responses, the largest group of participants (31%) pointed to information they learned about the new, challenging and/or controversial film topics discussed at the symposium. About one-fifth (19%) were drawn to the research presented on visual communication, particularly the findings from the field of neuropsychology. Two smaller groups (11% each) were most interested in information presented on industry statistics/trends/opportunities and storytelling. The remaining participants mentioned themes relating to producer-museum relations (6%), multiple media platforms (5%), other themes (11%) or left the question blank (26%).

➤ **How valuable did participants find the speaker presentations?** Participants generally found the presentations valuable and agreed that the speakers exposed them to new ways of thinking about communicating science to the public, although exhibitors had a significantly higher level of agreement with this statement than producers. Participants were generally somewhat divided about whether the symposium included too many speaker presentations. When invited to explain their ratings, a few participants chose to reiterate points raised under the question about what they found least valuable about the symposium, that the presentations seemed to them: too compressed, not sufficiently grounded in the realities of giant screen production, or were too similar to the papers the presenters submitted in the Pre-Symposium Materials to be of additional value to what they already read.

➤ **How did participants find the afternoon discussion sessions?** Participants generally enjoyed participating in the group discussions. They tended to agree that the "Breakout Session 1" effectively considered issues of film development guidelines and that the "Breakout Session 2" effectively considered issues of science subject area and goals. Participants were somewhat divided on the issue of whether they would have preferred more time set aside to relate the information presented to their own experiences and needs. When invited to explain their ratings, some participants pointed to areas that they felt could have been improved, including that the discussions: lacked guidance, covered too much material, were too general, had too little time set aside for audience brainstorming or involvement, or were misdirected as they didn't address how filmmakers apply information presented about the use of "story" in films.

➤ **Did participants think that the symposium format provided the right balance of speaker presentations versus group discussion?** Most participants (69%) were of the opinion that the symposium format provided the right balance. The remaining participants were nearly evenly divided between thinking there was either too much emphasis on speaker presentations (16%) or break-out sessions (13%). When participants were invited to explain their response, they tended to: focus on the

schedule being too densely packed, suggest revisions to the presentation and discussion formats, or offer general praise for the event's dual format.

- **Did participants have suggestions for a different format that might work even better?** Most participants did not suggest the symposium team consider a different format for the event, although some suggested specific changes to the balance, length, or focus of the speaker presentations or discussion sessions.
- **What actions did participants expect to take after the symposium?** The Symposium Preparatory Materials suggested specific actions that participants could take after the symposium. Participants generally agreed that they would both complete the follow-up survey emailed to them within six months and think about ways that they can enhance the potential of giant screen for connecting science in society. Participants also generally agreed that they would: consider ways to implement what they learned at the symposium; continue to question and discuss the symposium content; and disseminate information to others in the industry or in their workplace who could not attend. Participants were somewhat divided over whether they would participate in or start discussions about giant screen issues on the new GSCA listserv. When invited to explain their ratings, a few participants noted that they were unlikely to participate in GSCA listserv discussions because they were an “outsider” or not a member of GSCA.
- **How did participants expect to apply what they learned at the symposium?** The majority of participants (72%) were able to identify at least one specific way they expected to apply what they learned at the symposium. One-third (32%) of the participants expected to apply what they learned by sharing, discussing, or collaborating with others. Just under one-fifth (18%) expected to pursue more knowledge or think more deeply about topics covered at the symposium while 13% each expected to pursue more proactive marketing/outreach or explore new film topics. Just over one-quarter (27%) left the question blank.

### Part 3: Follow-up Findings

To explore the longer term impact of the symposium, participants were invited to complete a follow-up online survey approximately 9 months after the event. The survey invitation was sent via email by the symposium organizer who also served as the event contact person. The invitation informed participants that their input was an important part of the feedback being gathered for the symposium team and that the evaluation was funded by the National Science Foundation. The invitation further explained that the survey was hosted on an independent evaluator's website and that participants' responses to the survey were anonymous and would be combined with those of other participants and then reported in the aggregate. To help refresh participants' memory of the event, a copy of the agenda was included on the survey welcome page.

A total of 30 participants completed the follow-up questionnaire, representing almost half (48%) of those who completed a post-event questionnaire on the day of the symposium. The demographic and background information for this group included: somewhat more males (60%) than females (40%); a wide range of ages, spanning 29-69 years, with a mean age of 51; a racial distribution comprising 90% Whites, 3% Asians, and 3% mixed race participants, with 10% of the participants being of Hispanic Origin; and a

comparable proportion of producers (37%) and exhibitors (33%), with smaller numbers of educators (10%), distributors (7%), students (10%) and other industry representatives (9%).

- **Which of the follow-up activities suggested in the Symposium Preparatory Materials did participants pursue since attending?** About three-quarters of the participants (73%) said they did three of the five suggested activities, including: question or discuss the symposium content; consider ways to implement what they learned at the symposium and; think about ways that they could enhance the potential of giant screen films for connecting science in society. Half of the participants (50%) said they disseminated information to others within their industry or workplace who could not attend while two-fifths (40%) networked with other symposium participants.
- **To what extent did participants follow-up on or apply what they learned about at the symposium?** On the post-event survey completed at the symposium, participants described the topics that they found most interesting to learn about. A total of 5 topics were evident across their responses. On the 9 month follow-up survey participants were then asked whether they had a chance to either follow-up on any of these topics (e.g., seek more information, discuss the topics with others) or apply anything they learned the topics that participants most frequently chose to follow-up on were not necessarily the same ones that they chose to apply. The top two topics participants chose to follow-up on were multiple media/exhibits/programs to extend the learning value of films (37%) and optimizing producer-museum relations (30%). The top two topics that participants chose to apply were using storytelling to inform filmmaking (37%) and exploring new, challenging, and/or controversial film topics (37%). Other topics were pursued by roughly one-quarter or less of the participants.
- **In which industry areas did participants apply what they learned at the symposium?** Participants were asked to identify the industry areas in which they had a chance to apply something they learned from the symposium. Most participants (87%) reported that they had applied something in at least one industry area. The most frequently mentioned areas were film development or production (47%) and public education programs (43%). About one-fifth of the participants pointed to one of the following areas: exhibit development, renovation or expansion (23%), staff development/enrichment (20%), marketing (20%), or K-12 student programs (17%). Less frequently participants identified: K-12 teacher education programs (13%), distribution (13%), volunteer/docent training (3%), or other areas (10%). A small percentage of participants (13%) indicated they hadn't yet applied anything learned at the Symposium, although all reported that they had learned something new.
- **What types of challenges or obstacles did participants encounter in applying what they learned at the symposium?** Most often participants pointed to financial constraints (60%) followed by competing institutional priorities (40%) or time constraints (37%). Just one-tenth (10%) of the participants hadn't encountered obstacles/challenges while 7% hadn't yet applied anything learned at the symposium. Another 7% mentioned other constraints.
- **What did participants do with the *Symposium Preparatory Materials* after attending the symposium?** Most participants did one of three things with the *Symposium Preparatory Materials* after attending the symposium: file them away (47%), share them with others (33%), or read or refer back to them (27%). The remaining participants used the materials to write an article or brief about the event (7%) or lost the materials (7%).
- **Upon reflection, what did participants share about the extended impact of the symposium on them or their work?** When offered a chance to reflect on the extended impact of the symposium, just

over half (53%) of the participants did not answer the question. Just over one-quarter (27%) focused on what still stood out for them about the event, with several indicating that it was thought-provoking and raised important and timely issues. One-fifth of the participants (20%) instead suggested revisions to the symposium format, either relating to the use of lecture and discussion at the event or adding possible follow-up activities designed to reinforce its impact.

- **Did participants have suggestions for how GSCA could improve the next symposium to better serve their industry area?** Participants offered few suggestions, with the main suggestion being a greater emphasis on practical applications vs. academic perspectives (17%). A couple of participants (7%) suggested broader dissemination and sharing of content.

## Discussion

To return to the central evaluation issue raised at the beginning of this report: To what extent did the symposium achieve the professional audience goals described to the NSF? The evaluation found that the symposium appealed to and was valued by the attendees that participated in evaluation, and had an impact on both their perceived knowledge of science communication and subsequent actions nine months later. Specifically, the evaluation found that participants generally:

- Took advantage of materials provided before the event;
- Reacted positively to the symposium structure and format;
- Found the symposium to be a valuable use of their time;
- Perceived that they had a significantly higher level of knowledge of the potential of giant screen films to communicate science to the public after the event;
- Learned at least one new interesting thing as a result of attending; and
- Expected to follow-up on or apply something they learned and then reported that they *actually* did so within nine months of the event.

This final section of the report discusses the evaluation findings in context, points to the evaluation's design limitations, and suggests future areas of study.

### The participant group

Based on the 95 individuals who registered for the event, the corresponding response rate achieved for the survey indicated that at least two-thirds, and possibly more of the attendees, completed the two surveys on the day of the symposium. The extent to which the demographic and background information reported for this participant group matched the organizers' attendance expectations should be looked at in planning future events. The evaluation found that the group as a whole: included a higher proportion of females to males, was predominately White, and had a close balance of producers and exhibitors, with relatively few educators, distributors, students, or other industry representatives. Most had not attended the 1999 symposium, primarily because they weren't part of the industry at the time. It's notable that at least a few had attended, however, and that these individuals had the benefit of both their prior experience at the 1999 symposium and their longer term industry perspective to draw on as context for the 2008 event.

Attendance at the symposium in terms of overall head count was not confirmed. The registration rate approximated the symposium organizers' projections, yet was slightly lower than that achieved for the 1999 symposium. Both Web- and email-based announcements initiated by GSCA appeared to drive the marketing mix for the 2008 event, as participants most often said they learned about the symposium through announcements that were emailed to GSCA members, posted on the GSCA website, or distributed via the GSCA e-news. Few other marketing methods were mentioned. In planning future symposiums, it may be worth exploring other marketing methods to further increase and diversify participation beyond the traditional channels reached through GSCA.

Finally, in terms of tailoring the symposium to the needs of diverse industry representatives, it is notable that only one subgroup differences was found across the evaluation findings, indicating the symposium was generally well received by and successful with at least the two predominate groups of producers and exhibitors. The evaluation did find that, compared to producers, exhibitors had a significantly higher level of agreement with the statement that the speakers exposed them to new ways of thinking about

communicating science to the public. Future symposium organizers might give additional attention to incorporating producers' specific industry interests and needs when planning speaker presentations and materials for dissemination.

### The Symposium Preparatory Materials

The Symposium Preparatory Materials distributed prior to the event proved to be a valuable resource for attendees, before, during, and after the event. The majority of the participants said they read at least one of the nine Advance Papers provided ahead of time, and the engagement might have been even higher for some with earlier receipt. The materials also provided a useful reference during the symposium as the majority of participants said they brought the materials with them and that they were already familiar with the day's schedule before arriving, although here again, some participants would have preferred receiving this information even earlier. Finally, the resource proved useful well after the symposium. While just under half of the participants said they had filed the Symposium Preparatory Materials away by the 9-month follow-up, one-third shared them with others and one-quarter read or referred back to them. A few participants even used the materials to write articles or briefs.

In sum, the project's investment in this resource seemed to pay off, and while earlier receipt is something to aim for in future events, the fact that the materials are available online on the GSCA website considerably extends the potential reach and life of the materials moving forward.

### The symposium's appeal and value

In terms of event organization, participants generally found the symposium to be: well run, a good use of their time, and worth the travel to attend the session in person. Few participants suggested the project team consider a different format for the event, and most indicated that the symposium organizers struck the right balance of speaker presentation to group discussion, although some suggested changes to the balance, length, number, or focus of the speaker presentations or discussion sessions. Less often participants pointed to the schedule being too dense or long or indicated that viewing the film clips was redundant or a poor use of time.

Based on the registrants' expectations of the symposium, as articulated by two-thirds of the registrant group days or weeks before the event, the symposium generally fulfilled these expectations. Registrants generally expected, and the survey participants ultimately indicated that they: learned about the potential of giant screen films to educate and inspire the public about science; learned about how other media can augment, create synergy, or extend the impact of giant screen films; dialogued and collaborated; got an overview of the giant screen industry; and gathered new film ideas.

Participants' activities at the symposium also generally matched the organizers' expectations as outlined in the Symposium Preparatory Materials. Notably, most participants reported networking, yet looking back to registrants' expectations of the event, few listed this as an expectation prior to attending. Most participants also reported that they contributed to break-out discussions and that the symposium broadened, deepened, or challenged their thinking about best practices. Although relatively few asked questions during the formal Q&A, these periods were held with the full group of participants so limited time was available for this purpose.

When asked to pinpoint the most valuable aspects of the symposium, participants most often praised the morning presentations followed by the afternoon discussions. Participants' responses to other questions

on the survey further confirmed that they found that the speaker presentations of value and exposed them to new ways of thinking about communicating science. Similarly, participants elsewhere on the survey indicated they enjoyed participating in the discussions and determined that the two break-out sessions effectively considered the issues they were designed to address.

On the flip side, some of these same elements appeared in participants' comments about what they found least valuable about the symposium, that is, participants most often pointed to some aspect of the morning presentations or afternoon discussions. Participants' issues with the speaker presentations tended to focus on the presentations being perceived as: too academic or theoretical; lacking in practical relevance; too dense or packed with content; or too similar to the presenters' Advance Papers. Issues with the afternoon discussions tended to focus on the sessions being perceived as: redundant, difficult to interpret, lacking in guidance or audience involvement, covering too much material, too general, too focused on reporting out, or not sufficiently focused on addressing how filmmakers can apply information presented about the use of "story" in films.

#### The symposium's impact on learning

Learning value from the symposium also rated high. When asked to identify the most interesting thing they learned, all of the participants were able to describe at least one new item of interest by the end of the day. Most often participants were interested in information they learned about new and controversial film topics, yet it's notable that only a couple of registrants listed this as an expectation of the event prior to attending. Other salient topics of interest were: visual communication research, industry trends, and/or storytelling. A few participants also pointed to new information they learned about producer-museum relations and multiple media platforms.

Participants further indicated they had more knowledge of the potential of giant screen films to communicate science to the public after the symposium compared to before. In interpreting this finding, however, it is important to note that the evaluation design was a one-group pre-post design. An experimental design was not used given budget constraints and the fact that there was no reasonable control group from whom the symposium could be withheld. The pre-event questionnaire primarily gathered background information from participants and was administered separately from the post-event questionnaire to ease the burden of this end-of-day evaluation task given the full symposium agenda. While the pre-event questionnaire was not generally considered a significant threat to the validity of the overall results in terms of a testing effect, participants were asked about their knowledge of the symposium topic on both questionnaires.

Two additional limitations to bear in mind when interpreting this finding on knowledge gain is that: (i) the question is self-report in nature, not an objective measure of participants' actual knowledge, and (ii) it is only one question, not a set of questions that could be combined as a more valid measure of participants' knowledge gains. At the same time, for the purposes of the current evaluation, the finding provides a general indicator of the symposium's learning value as perceived by the participants in attendance.

#### The symposium's extended influence

Beyond the immediate impact of the symposium on the day of the event, the evaluation also found that the symposium continued to influence participants more than nine months later. Participants' expectations of their subsequent actions largely matched what they later said they did. For example, participants generally expected to question, discuss, think about, apply, or disseminate information covered at the symposium. They also expected to apply what they learned at the symposium by



sharing, discussing, or collaborating with others; thinking more deeply about or researching topics covered; pursuing more proactive marketing/outreach; or exploring new film topics. Participants tended to be more divided, however, about their likelihood of participating in or starting discussions about giant screen issues on the new GSCA listserv. As of the writing of this report, however, the listserv was not yet established, so the role this feature might have played in participants' subsequent actions after the symposium could not be assessed.

At the nine-month follow-up point, three-quarters of the participants actually reported that they had: questioned or discussed the symposium content; considered ways to implement what they learned; and thought about ways that they could enhance the potential of giant screen films for connecting science in society. Between two-fifths and one-half of the participants said they disseminated information or networked with other participants. The Symposium Preparatory Materials were also often referred to, shared or even used to develop new resources within the nine-month timeframe.

Yet when participants were asked, in the form of an open-ended question, to reflect on the extended impact of the symposium, relatively few discussed personal examples of impact. Instead participants tended to focus on possible revisions to the symposium format or they offered praise for the event. This finding should be looked at in the context of how participants responded to other questions. As noted above most participants reported engaged in one or more activities suggested in the Symposium Preparatory Materials within 9 months of the event. Elsewhere on the follow-up questionnaire, most further reported that they had followed-up on or applied something they learned. The topics participants most frequently chose to follow-up on, however, were not necessarily the same ones they chose to apply. The top two topics participants chose to follow-up on involved the use of multiple media/exhibits/programs to extend the learning value of films and optimizing producer-museum relations. The top two topics that participants chose to apply involved using storytelling to inform filmmaking and exploring new, challenging, and/or controversial film topics.

Most participants also reported that they applied something they learned from the symposium in at least one industry area, most often film development and production and/or public education programs. Not all went smoothly, however, as some participants ran into challenges in applying what they learned. Most often the challenges involved financial constraints, lack of time, or competing institutional priorities.

#### Looking ahead to future symposiums

Relatively few participants recommended improvements for future symposiums. Most often they suggested: a greater emphasis on practical applications as opposed to academic perspectives, additional mechanisms for content dissemination and sharing, and follow-up activities to reinforce the symposium's impact. Participants' specific suggestions relating to the speaker presentations, discussion sessions, and efforts to reinforce the symposium's impact over time are summarized below.

##### *Speaker presentations*

- Have speakers redirect or expand upon their Advance Papers, rather than appear to repeat them.
- Invite fewer presenters and give speakers more than 12 minutes to help prevent information overload or the impression that the talks being were too compressed or disjointed;

- Lighten the academic/theoretical emphasis or help speakers find ways to better connect how their work relates to the giant screen industry;
- Allow participants to pre-submit questions to presenters to give them a chance to review issues of salience to the audience;

#### *Discussion sessions*

- Tie the discussion questions more closely to the presentation topics;
- Have the first discussion session follow the first group of presenters, then do same for the next group to help allow for more tailored and focused discussion;
- Increase the focus on applications or how participants can translate the information from the speaker sessions and use the information in their respective field;
- Shorten report out periods to reduce the number of reports and redundancy in reporting;
- Develop an alternative discussion format that doesn't encourage "film-by-committee" thinking or "group-think" which may yield predictable ideas; and
- Introduce the break-out groups online ahead of the symposium to stimulate more informed discussion and questions at the event.

#### *Reinforce the symposium's impact over time*

- Stretch the format over 2 days to allow for more creative and applied thinking;
- Offer mentoring/shadowing/collaboration opportunities after the symposium to help foster the application of information presented at the symposium;
- Nudge/encourage participants to follow-up, and provide mechanisms for them to be able to follow through (e.g., GSCA listerv);
- Disseminate the symposium message in multiple settings and use online discussion forums/listervs to continue dialogue and networking over time;
- Broaden the reach to other organizations (e.g. ASTC and AAM were suggested), both before and after the symposium; and
- Develop/provide case studies of successful applications and then disseminate the examples to participants.

In closing, as this is the first evaluation of a GSCA Lifelong Learning Committee symposium, with the first occurring in 1999 and the sequel following in 2008, the findings can help establish a knowledge base of professional development initiatives directed at giant screen industry representatives. For the purposes of this project, the evaluation was tightly focused on assessing the symposium goals articulated in the NSF grant, leaving many issues unstudied due to budget and other constraints. Several issues warrant further exploration, such as: the optimal combination of speaker presentations to discussion sessions; participant preferences for applied versus academically focused symposium content; the factors that facilitate and impede a symposium's extended impact over time; the role of moderators and speakers in discussion sessions; the effects of the symposium experience on the invited speakers; and the effectiveness of various marketing strategies to increase and diversity participation.

Some of these issues were raised at the 2009 GSCA International Conference and Trade Show when members of the evaluation and project team presented the symposium findings at the Lifelong Learning Committee professional development session. The presentation was a useful opportunity for the evaluators and symposium organizers to: collaboratively reflect on the symposium, at that

point hosted a full year earlier; exchange perspectives on how to present the findings; develop a set of issues for audience consideration; and explore priorities for future work. During the session members of the audience, many of whom attended the 1999 and/or 2008 symposium, also raised questions of their own and contributed suggestions for future areas of study. The discussion that ensued during the session as the project team, evaluator, and audience members collectively revisited and reflected on the symposium findings nearly one year later, became yet another form of valuable outreach and feedback for the project. This session, combined with the symposium materials, evaluation findings, and conference proceedings that were subsequently posted on the GSCA<sup>15</sup> website, served to further expand the reach of the 2008 symposium, extend its influence over time, and lay a foundation for informing the direction of future symposiums.

In closing, it's fair to say that based on the project's dissemination efforts and the evaluation findings presented in this report, the 2008 one-day symposium *Connecting Society with Science: the Greater Potential of Giant Screen Experiences* has and will likely continue to be a valuable resource within the giant screen industry for the foreseeable future.

---

<sup>15</sup> <http://www.giantscreencinema.com/MemberCenter/SymposiumMaterials.aspx>

## APPENDIX 1

### Participants' comments on individual speaker presentations

Where more than one participant said the same word parentheses indicate the total number of participants saying that word or phrase. Presentations are provided in the order in which they occurred at the Symposium.

<i>Science and Visual Communication</i>	
<p>+++ A+ Abstruse All the speakers were excellent and diverse and individual! Could use another viewpoint. Many of the ideas were too generalized. Encourage my organization to "surround" movies-and take ideas to a consortium of non-profits with similar methods who are pretty together on educational collaboration. Excellent provocative and informative Excellent; the best and most informative speaker. Excellent-well planned... Fabulous! Good (2)</p>	<p>Great I enjoyed all and each had a unique point of view. I found valuable. Interesting (2) Want more detail. Not much practical application The single most interesting talk presented. Thought provoking. Excellent! The best! Very dependent on prepared text. Very good (2) Weak Weak delivery. Wonderful!</p>

<i>The Inconvenience of Truth: Rethinking the Agency of Science Film Spectators in a Post-Postmodern Era,</i>	
<p>- ? A bit garbled and opinions without substantiation. D- She ahs not done enough research to reach her conclusions. Difficult to understand. One point that w Excellent! Move science studies/film study folks! For me the weakest thing today. Forgettable Good Great critical analysis. Great/clear I disagreed with her conclusions-but interesting I would love to listen the end... Interesting Needed some "dumbing down"</p>	<p>Needed time to do her video-should have been rehearsed. Pedantic Presentation content/style not useful Seemed best presentation and I look forward to comparing works with Lisa. Theoretical and unfocused. Thought provoking Too jargony. Too scattered and abstract to be useful. Unable to connect comment with her visuals. Weak What?.. based solely on 'authority.' That's anti science, not transparent or accusable argument. Wish she had gotten to technology aspects that can be utilized-needed better time management and less jargon.</p>

*Using Telepresence to Communicate Science in Giant Screen Cinema*

<p>++ A different perspective interesting but limited. B Data, need data, he's open to working with giant screen. Didn't get GS format Fun, but he failed to tie it to large format. Good presentation and paper. Good. Great I was familiar with this referral, but believe it was in excellent inclusion. Impractical but interesting. Interaction of science and...well developed, image sticks in mind.</p>	<p>Interesting (6) would have liked to hear more on its future. A little too narrow. Not a best fit - too similar topic to others Ok Presented better understanding of topic that I only had known 1 dimension. Putting an academic label on what we have been calling "the Imax Experience" This is what everyone wanted to hear. Very informative and useful Very interesting (2) new and engaging Very useful.</p>
---	---

*Picturing Science*

<p>++ Amazing. I want a signed print for my living room, please! B+ Beautiful work! Good ideas. Best style of presentation, full of info, yet personal. Brilliant material, could be a good focus for folks Maybe b? Excellent Fantastic and enjoyable. Fascinating (2) Great! (3) Interesting (4) Interesting but not so relevant to gain screen films. Intriguing/captivating.</p>	<p>OK Powerful images! Provocative Very impressive. Very interesting but not sure I quite got it-will check her work out. Very self involved, but beautiful visuals. Very useful Very creative! Wonderful! Made me want to make science films with microphotography! Very inspiring... Wonderful (3)</p>
--	--

*Science and Health Literacy in a Global Age: Images, Meanings, Prospects*

<p>+ A- A few good points. Not well-connected. A little dry. Could go deeper Excellent presentation from a unique perspective Great sci. artist. Great, practical. Now let's discuss implication of a company sponsoring of a GS film. Great.</p>	<p>Grounded, concrete, liked it. Insufficiently visual important topic Interesting and on the mark Lovely pictures! Ok Overall useful Very interesting Very relevant. Liked science literacy categories. Well done, and well presented.</p>
---	---

***Giant Screen Films and Lifelong Learning***

+ A disappointment. B- Effective use of her presentation tools. Excellent! Publish some research! Good. Illuminating on what audiences took away Interesting (2) Nice material for a plenary (session)	Not enough data. Not exciting, but good info Okay UG presentation -enjoyed seeing film clips and then hearing results of evaluation. Real life studies, examples, liked it. Very interesting. Very useful Weak
--	---

***The 12 Step Program (for Communicating Science)***

**Mind the Gap!**

++ Amusing but seriously informative. B (comical) Clear, practical Enjoyed the viewpoint of the journalist, as opposed to academic. Excellent Fun Good (2) good points on simple, clean public communication Good reality check. Good speaker Great -engaging and useful. Great! Humorous and engaging brilliant!	I read the paper. Why read it if he was going to. If I complete the 12 step program will I lose my addiction to science? Insightful and helpful Interesting Nicely provoking... Not sure this was relevant to the group. Not well connected to theme of symposium. Practical advice So-so Too print... Tried too hard to be quirky and funny; thin message Very interesting Very practical. VG-on of the best presentations-would have liked to have given more time.
--	--

***Museum Predicaments: (Re) Considering Institutional Forms and Controversy in Global Risk Society***

+++ B- Boring; nothing of interest Completely obscure! More dumbing down here too. Excellent Fiona just read her paper and did not seem to make a point. Good research Hot. Interesting Irrelevant Key question. Made a good point Needed rehearsal but good ideas-too d? presentation Not relevant.	Not to helpful Ok, not so relevant. Okay She made me think deeper. She made some great points. So-so Thick and coherent, and I like controversy. Too many all-text PowerPoint slides. Very good points once one figured out what she was saying. Very interesting and expanding Very interesting- but what did it have to do with film... Weak Would have been an interesting topic, but not presented for anyone outside his field.
---	--

### *Grand Challenge for the Giant Screen*

<p>+</p> <p>B</p> <p>Confusing</p> <p>Excellent points</p> <p>Excellent! The best.</p> <p>Good summation</p> <p>Hard to do, but important stuff. Love it.</p> <p>Helpful</p> <p>I'll think of Randy and engineering often. Understanding technology innovating and engineering is important.</p> <p>Important point of view, but...Don't use...I do agree!</p> <p>Interesting but way too defensive bordering on paranoid; engineering is important but not the center of the earth.</p> <p>Narrow views of subject matter are not commercially viable.</p> <p>Nice perspective shift.</p> <p>Nice.</p>	<p>No visuals-hurts presentation</p> <p>Not well connected to symposium.</p> <p>Ok</p> <p>Okay, this one I got, and agree with in principle-it is just difficult to do because, as an engineer you have to tell the compelling story of technology or how engineers use science /technology to help society perhaps I am too tired for this one, and I will re-read.</p> <p>Promoted a specific agenda.</p> <p>Right on!</p> <p>Useful reminder that sci does not equal technology and does not equal engineering.</p> <p>Very clear and useful</p> <p>Very interesting</p> <p>Very stimulating-suggesting new topics!</p> <p>Very time, we need engineering career focus more.</p> <p>Wonderful perspective.</p> <p>Yes! Music to my ears!!</p>
---	--

### *An Urgent Challenge*

<p>++</p> <p>A-</p> <p>A good choice for a wrap-up speaker</p> <p>An excellent close intelligent and well done.</p> <p>Articulate</p> <p>Clear, thoughtful.</p> <p>Enjoyed the summary at the end.</p> <p>Excellent ideas</p> <p>Excellent overview with relevant applications to Imax project.</p> <p>Excellent!</p> <p>Fantastic.</p> <p>Good</p>	<p>Good overarching synthesis.</p> <p>Great ideas, well persuaded.</p> <p>Great theme and important</p> <p>Great.</p> <p>I was wanting more.....</p> <p>Interesting</p> <p>Lovely and important ideas.</p> <p>Mundane.</p> <p>Not sufficiently oriented forward giant.</p> <p>Not that interesting.</p> <p>Seemed dated.</p> <p>Well considered; good on ISG, unsure about giant screen film relevance.</p>
---	---