

GSCA 2010 Conference Attendees Awareness and Attitudes Towards DIGSS

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About the Institute for Learning Innovation: Established in 1986 as an independent non-governmental not-for-profit learning research and development organization, the Institute for Learning Innovation is dedicated to changing the world of education and learning by understanding, facilitating, advocating and communicating about free-choice learning across the life span. The Institute provides leadership in this area by collaborating with a variety of free-choice learning institutions such as museums, other cultural institutions, public television stations, libraries, communitybased organizations such as scouts and the YWCA, scientific societies and humanities councils, as well as schools and universities. These collaborations strive to advance understanding, facilitate and improve the learning potential of these organizations by incorporating free-choice learning principles in their work.



Executive Summary

The Institute for Learning Innovation (ILI) conducted a study to examine the impact of an information campaign presented at the 2010 Giant-Screen Cinema Association Annual Conference and Trade Show in Chattanooga, TN. The purpose of the study was to determine if changes in Conference attendees' awareness and attitudes towards the Digital Immersive Giant-Screen Specifications (DIGSS) could be attributed to the information campaign.

Data were collected using an online questionnaire containing 11 "post/retrospective-pre" items exploring the level of knowledge and attitude Conference attendees had both prior to and after attending the Conference. Participants were recruited via email request, using email addresses provided by the GSCA Executive Director. Two reminder emails were sent to those who were not recorded as completing the study. Eighty-two participants responded, nearly 26% of the 319 valid email addresses supplied to the researchers. The sample contained a higher percentage of professionals affiliated with institutional giant-screen theaters than had attended the conference.

Overall findings reflected a significant increase in knowledge and positive attitudes toward the DIGSS effort when comparing pre-Conference to post-Conference results on nine out of the 11 items (one negatively worded statement was used for comparison with 10 positively worded items). These results suggest the information campaign presented at the Conference was effective in increasing awareness, knowledge, and contributed to an increase in supportive attitudes of giant-screen professionals that would encourage further development of a shared DIGSS.

Examining our findings by number of years in the giant-screen industry revealed that participants who attended the conference and have worked in the giant-screen industry for two-or-less years or from five-to-10 years were more likely to feel that the outcome of DIGSS will affect the kind of work they are currently doing. Participants who have worked in the giant screen industry for two-to-five years were less likely to feel DIGSS will impact their work than those working in the giant screen industry for ten-ormore years. This latter result was consistent in both the retrospective-pre results and the post-conference results. Most of these respondents were aware of the current options and quality levels associated with conversion to digital.

Those who work as managers in a museum/educational organization revealed a greater degree of change between their retrospective-pre and post responses than those involved in film making/production/distribution. These museum professionals were more likely to feel that the industry should be trying to fill giant-screens rather than conforming to conventional shapes and were therefore more supportive of the unique attributes of current GS formats. Additionally, those managers museum/educational organizations were more likely to feel that DIGSS should address both dome and giant flat screens than those who were in our "other" category (e.g. academics and journalists).

A slight majority of participants stated they believe analog films will no longer be available within the next four to seven year, with a smaller percentage believing that the format will be unavailable in three years or less. The vast majority (11 out of 12) of those who believe it will be 8-12 years before analog films are no longer available have worked in the industry for greater than 12 years. Understanding and addressing these differences in opinion of the end of analog will be useful in providing further justification for the urgency of developing and implementing DIGSS.

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Introduction

The White Oak Institute in partnership with the Institute for Learning Innovation and others received funding to develop Digital Immersive Giant Screen Specifications (DIGSS). As part of this effort an information campaign was presented at the Giant Screen Cinema Association's Annual Conference and Trade Show (Conference) in September 2010 at Chattanooga, Tennessee. ILI has been tasked with examining the effectiveness of this campaign at raising the awareness and attitudes of Conference attendees towards Digital Immersive Giant Screen Specification (DIGSS). The following paper reports on the study conducted to examine Conference attendee's changes in knowledge, awareness, and attitudes towards DIGSS.

Research Purposes and Questions

The purpose of this study was to identify Conference attendee's knowledge, attitudes, and awareness of the development and implementation of DIGGS and to examine the effectiveness of the information campaign initiated at the Conference in increasing awareness and positive attitudes towards DIGSS. The overarching question for this study was:

 Was the information campaign presented at the Conference effective in promoting a positive change in the awareness and attitudes of Conference attendees towards DIGSS?

This question was answered through a series of sub questions:

- What changes in knowledge, awareness, and attitudes towards DIGSS were evident when comparing results from pre-Conference to post-Conference?
- Were there differences in awareness and attitudes towards DIGGS based on participants' primary focus as professionals in the Giant-Screen (GS) field?
- What beliefs did Conference attendees hold regarding the possible attrition of industry support for the analog film format?

Methods

Data were collected using an online survey instrument on a surveymonkey.com platform using email addresses for registered Conference attendees provided by the Giant Screen Cinema Association. Participants were recruited via email, with a request for their voluntary participation in the study. Click-through responses were monitored, and two reminder emails sent to those who had not yet responded. A total of 319 valid email addresses were supplied, with 82 (25.7%) participants completing the survey.

Measurements

Post with retrospective-pre items were used to access participant's attitudes and awareness of DIGSS prior-to and post-Conference. Participants were asked to state their level of agreement both pre and GSCA Conference Attendee

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post Conference, from strongly disagree to strongly agree (bi-polar anchored Likert-type scales) with the 11 items listed below. For statistical analysis, results were converted to a score on a seven point scale, with 1 representing strongly disagree, 4 representing a neutral/neither agree nor disagree response, and 7 representing the strongly agree response. The items were:

- I am aware of how the conversion to digital in the film industry is creating new challenges and opportunities for giant-screen and dome theaters.
- There is a need for institutional giant-screen theaters to have Digital Immersive Giant-Screen Standards (DIGSS).
- I am aware of the current efforts to develop DIGSS.
- Developing DIGSS is necessary to ensure the future success of institutional giant-screen theaters.
- Once DIGSS is fully developed, the outcome will affect the kind of work I am currently doing.
- I intend to support the effort to develop DIGSS.
- I will support the outcome of the DIGSS development process.
- We should not try to fill giant flat and dome screens and, instead, conform to conventional shapes.
- It is necessary for DIGSS to address the needs of both flat and dome screens.
- The eventual conversion from analog to digital film projectors for institutional giant-screen theaters is inevitable.
- I am aware that there are many options for digital conversion of existing giant-screen theaters, at various quality levels.

Participants were asked to rate their level of awareness prior-to and post-Conference for the item, *I am aware of the basic technical criteria that make a giant-screen experience*. Results for this question were converted to a single core on a four-point scale, with a 1 representing not at all aware, and 4 representing the very aware response.

Participants were also asked to provide an estimate of how many years it would be before the lack of availability of analog films would require giant-screen theaters to transition to digital formats.

Demographics

Demographic information (Table 1) revealed that over half (53.2%) of responding participants have worked in the giant-screen industry for longer than 12 years. A majority of participant stated their primary work focus is either museum/educational organization management (50.6%) or film making/production/distribution (26.0%). Participants were asked to select the type of giant-screen venue they are associated with. The most frequently selected type of screen was giant-screen flat (40.2%) followed by 2D/3D (30.5%), Dome (24.4%), Full-Dome/Planetarium (11.0%), and 3D Digital (8.5%). Because some theaters have more than one format, participants were able to choose all that apply (results exceed 100%).

Demographic data collected by the GSCA at registration suggested 36% of attendees were affiliated with institutional theaters, 33% were distributors or film-makers, 19% were in manufacturing or supply, and an additional 12% were affiliated with commercial GS theaters. Comparing these results to the data provided by survey participants suggests that our findings were more heavily weighted toward those working in institutional theaters (51.9% of our population was affiliated with museum/ educational organization management or educational programming). To correct for bias, numbers are reported based on affiliation and readers are cautioned to consider the results based on this variation.



Table 1: Participant length of time in giant-screen industry by primary focus frequency percent of total (n=77)

	How long have you worked in the giant-screen industry?							
					12 or			
	Less than		5 – 10	10 – 12	more			
Primary focus?	2 years	2 – 5 years	years	years	years	Total		
Film making/ production/ distribution	1 (1.3)	2 (2.6)	4 (5.2)	1 (1.3)	12 (15.6)	20 (26.0)		
Museum/ educational organization management	3 (3.9)	7 (9.1)	5 (6.5)	4 (5.2)	20 (26.0)	39 (50.6)		
Product manufacturer	1 (1.3)	3 (3.9)	0	0	3 (3.9)	7 (9.1)		
Journalism/ academic/ consulting	0	1 (1.3)	0	0	2 (2.6)	3 (3.9)		
Promotion/ marketing	1 (1.3)	1 (1.3)	0	1 (1.3)	2 (2.6)	5 (6.5)		
Educational Programming	0	1 (1.3)	0	0	0	1 (1.3)		
Other	0	0	0	0	2 (2.6)	2 (2.6)		
Total	6 (7.8)	15 (19.5)	9 (11.7)	6 (7.8)	41 (53.2)	77 (100)		

Findings

What changes in knowledge, awareness and attitudes towards DIGGS occurred from pre-GSCA Annual Conference and Tradeshow to post-GSCA Annual Conference and Tradeshow?

Findings revealed an increase in awareness and attitudes based on Conference attendance for the 10 positively worded items, and a decrease in the mean for the one negatively worded item (validating the general increase in knowledge about, awareness and development of more positive attitudes towards DIGSS). Paired samples t-test in which participant's mean scores pre-Conference were compared with their mean scores post-Conference indicated a statistically significant increase in mean for eight of the 10 positively worded items (Table 2). These findings suggest that attending the Conference and the DIGSS presentation positively increased knowledge about the DIGSS process, increased favorable attitudes toward the effort and expanded awareness about DIGSS.

Participants stated that they were moderately aware of the opportunities and challenges GS theaters face with the conversion to digital (pre M= 5.95) and that attending the Conference increased their awareness of the opportunities and challenges with conversion to digital (post M= 6.11). Standard deviation for this item remained relatively stable from pre (1.20) to post (1.25) conference suggesting that the topic was already familiar to many and that the increase in awareness was associated with increased knowledge and specificity rather than an introduction to new information.

Findings for the negatively worded item, We should not try to fill giant flat and dome screens and, instead, conform to conventional shapes, indicate that participants disagreed with this statement prior to attending the Conference (M= 2.26) and that attending the Conference served to slightly increase the level of disagreement with this statement (M= 2.21). This suggests participants do feel there is a need

to maintain the unique aspect of films that can fill the entire screen in GS theaters, rather than conforming to more conventional screen shapes.

Each of the remaining items were positively worded, and each had a significant increase in agreement from pre-Conference to post-Conference:

There is a need for institutional giant-screen theaters to have digital immersive giant-screen standards (DIGSS), (t(80)=-4.93, p=.000).

I am aware of the current efforts to develop DIGSS (t(79)= -6.52, p= .000). This item had the largest increase in mean from pre-Conference (4.70) to post-Conference (5.81), and a reduced standard deviation from pre-Conference (1.62) to post-Conference (1.04). This suggests the information presented on the development of DIGSS at the conference did serve to effectively raise the knowledge about, and awareness of, the development of DIGSS for Conference attendees.

Developing DIGSS is necessary to ensure the future success of institutional giant-screen theaters (t(79) = -5.83, p = .000).

Once DIGSS is fully developed, the outcome will affect the kind of work I am currently doing, (t(79)=-2.96, p=.004). Again, this result suggests that most imagine the industry will continue in its current form and programming rather than instigating more substantive change in the industry.

I intend to support the effort to develop DIGSS, (t(79) = -4.87, p = .000).

I will support the outcome of the DIGSS development process, (t(78) = -5.63, p = .000).

It is necessary for DIGSS to address the needs of both flat and dome screens, (t(80)= -3.22, p= .002). These results suggest that not all participants necessarily support the universality of the specification applying to dome theaters and that there will continue to be separate expectations for that format.

The eventual conversion from analog to digital film projectors for institutional giant-screen theaters is inevitable, (t(80)=-4.76, p=.000).

I am aware that there are many options for digital conversion of existing giant-screen theaters, at various quality levels, (t(79)= -2.53, p=.013). This result suggests that knowledge about the options may be present, but GSCA conference attendees are not confident that they fully understand these options in detail.

Additionally, the item rated on a 4 point scale, I am aware of the basic technical criteria that make a giant-screen experience, saw a significant increase in mean from pre-Conference (M-3.29) to post-Conference (M=3.53), (t(79)=-4.17, p=.000). These numbers suggest that Conference participants felt they were well aware of the technical criteria that make a giant-screen experience prior to the conference, and participants felt they increased their knowledge after attending the Conference, but there remains a great deal more opportunity for education about these technical issues.



Table 2: Participant awareness and agreement, Mean and SD pre-Conference and Post-Conference (N=81)

	χ̄	SD		SD	Р
	Before	Before	х̄ after	After	value
I am aware of how the conversion to digital in the film	5.95	1.20	6.11	1.25	.155
industry is creating new challenges and opportunities for					
giant-screen and dome theaters.					
I am aware that there are many options for digital	5.63	1.14	5.85	1.18	.013
conversion of existing giant-screen theaters, at various quality levels.					
The eventual conversion from analog to digital film	5.53	1.42	5.89	1.41	.000
projectors for institutional giant-screen theaters is					
inevitable.					
It is necessary for DIGSS to address the needs of both flat	5.40	1.21	5.67	1.25	.002
and dome screens.					
There is a need for institutional giant-screen theaters to	5.11	1.59	5.54	1.70	.000
have digital immersive giant-screen standards (DIGSS).					
I am aware of the current efforts to develop DIGSS.	4.70	1.62	5.81	1.04	.000
I intend to support the effort to develop DIGSS.	4.65	1.28	5.16	1.46	.000
I will support the outcome of the DIGSS development	4.52	1.12	5.06	1.30	.000
process					
Developing DIGSS is necessary to ensure the future success	4.43	1.50	5.05	1.76	.000
of institutional giant-screen theaters.					
Once DIGSS is fully developed, the outcome will affect the	4.25	1.52	4.52*	1.67	.004
kind of work I am currently doing.					
I am aware of the basic technical criteria that make a giant-	3.29	0.72	3.53*	0.64	.000
screen experience.					
We should not try to fill giant flat and dome screens and,	2.26	1.47	2.21	1.64	.508**
instead, conform to conventional shapes.					

Note: Items presented in descending order based on pre-Conference mean

What differences in awareness and attitudes towards DIGGS exist between participants based on the number of years they have worked in the Giant-Screen field?

An Analysis of Variance (ANOVA) was run using the number of years participants stated they worked in the GS filed as the independent variable and each item before and after attending the Conference as dependent variables. The results indicated significant differences between groups for three items.

The item *Once DIGSS is fully developed, the outcome will affect the kind of work I am currently doing* had significant differences between groups **AFTER** attending the Conference, (F(4, 73) = 3.89, p = .006). Post hoc analysis (Bonferonni) indicated significant differences existed between those who have worked in the GS field for 10-12 years (n = 6, M = 2.83), and those who have worked in the GS field for 5-10 years (n = 9, m = 5.22). This suggests that participants who have worked in the GS field for two or less year or five to 10 years feel

^{*} Indicates results that are near neutral, generally without opinion and possible areas for education program development.

^{**} Difference between pre/post is not significant .

much stronger that DIGSS will affect the kind of work they are doing than participants who have worked in the GS field for 10 to 12 years, after participants had attended the Conference.

The item *I* am aware that there are many options for digital conversion of existing giant-screen theaters, at various quality levels had significant differences between groups **BEFORE** attending the Conference, (F(4, 72)= 5.21, p= .001. Post hoc analysis (Bonferonni) indicated significant differences between participants who have worked in the GS field from two to five years (n=15, M= 4.93) and participants who have worked in the GS field 10 to 12 (n= 6, M= 6.67) years and more than 12 years (n= 42, M= 5.93). This suggests that participants who have two to five years of experience working in the GS field entered the conference feeling they were much less aware of the options for digital conversion than participants who have worked in the GS field 10 years or longer.

The item I am aware that there are many options for digital conversion of existing giant-screen theaters, at various quality levels had significant differences between groups AFTER attending the Conference, (F(4, 72)= 6.61, p= .000. Post hoc analysis (Bonferonni) indicated significant differences between participants who have worked in the GS field from two to five years (n=15, M= 5.27) and participants who have worked in the GS field 10 to 12 (n= 6, M= 6.67) years and more than 12 years (n= 42, M= 6.24). This suggests that participants who have two to five years of experience working in the GS field did increase their awareness of the options for digital conversion, however they remained significantly less aware than participants who have worked in the GS field 10 years or longer after attending the Conference.

What differences in awareness and attitudes towards DIGGS exist between participants based on the primary focus of their work in the Giant-Screen field?

Participants were placed into one of three primary focus categories to facilitate analysis:

- Film making/production/distribution (n= 20)
- Museum/educational organization management (n= 39)
- Other, including journalism, academic, consulting, marketing, promotion, and educational programming (n= 19)

An ANOVA indicated five items had significant differences between groups based on participant's primary focus of work.

We should not try to fill giant flat and dome screens and, instead conform to conventional shapes had significant differences between groups AFTER attending the Conference, (F(2, 75)= 3.85, p=.026. Post hoc analysis (Bonferonni) indicated a significant difference in means between museum/educational organization management participants (M= 1.67) and film making/production/distribution participants (M= 2.65). This suggests that museum/educational organization management participants disagree with not trying to fill GS screens stronger than participants who make, produce, or distribute films after attending the Conference.

It is necessary for DIGSS to address the needs of both flat and dome screens had significant differences between groups **BEFORE** attending the Conference, (F(2, 75)= 4.44, p= .015) and **AFTER** attending the Conference, (F(2, 75)= 4.44, p= .015). Post hoc analysis (Bonferonni) indicated a significant difference before attending the Conference between participants whose primary work focus is museum/educational organization management (M= 5.74), and participants in the "Other" category (M= 4.79). Again, post hoc analysis (Bonferonni) indicated a significant difference after attending the



Conference between participants whose primary work focus is museum/educational organization management (M= 6.03), and participants in the "Other" category (M= 5.11). This suggests that participants whose primary work functions focus on museum/educational organization management felt significantly stronger that DIGSS needs to address both flat and dome screens compared to those whose primary work focus fell into the "Other" category before the Conference and generally do not see the two formats as requiring the same specifications. After the conference both groups increased their level of agreement, yet the difference between groups remains significant and will continue to impact how DIGSS will be perceived by these professionals.

The eventual conversion from analog to digital film projectors for institutional giant-screen theaters is inevitable had significant differences between groups **BEFORE** attending the Conference, (F(2, 75)= 3.26, p= .044) and **AFTER** attending the Conference, (F(2, 75)= 4.78, p= .011). Post hoc analysis (Bonferonni) indicated before the Conference significant differences in mean existed between museum/educational organization management participants (M= 5.95) and film making/production/distribution participants (M= 5.20). Post hoc analysis (Bonferonni) indicated after the Conference significant differences in mean existed between museum/educational organization management participants (M= 6.38) and film making/ production/ distribution participants (M= 5.35). While both groups increased their level of agreement with the statement after attending the Conference, participants whose primary work focus is on museum/educational organization management feel the conversion to digital projectors is inevitable much stronger than participants whose primary work focus is film making/production/ distribution.

What is the timeline Conference attendees believe will be for analog films no longer being available?

Participant's response to the item asking the timeline for analog films no longer being available suggests that almost all participants who responded to the item with an estimate (n=57) believe analog films will no longer be available within the next 12 years. Slightly more participants estimated it would be four to seven years (n= 23, 40.4%) than those who thought it would be three years or less for this to occur (n=20, 35.1%). Twelve participants (21.1%) stated they felt it would be between 10 and 12 years before analog films are no longer available, while two (3.5%) stated it will be longer than 12 years before analog films are no longer available. Not included in the percentages reported above were one participant who selected that they had not given this enough though, and one participant who stated their institution is considering alternative uses for their giant-screen theater. An additional 17 participants selected the response that reflected they are not affiliated with an institution that has a giant-screen theater.

Eleven of the 12 participants who stated they believe it will be 8-12 years before analog films are no longer available have worked in giant-screen film for more than 12 years. One out of the two participants who stated it would be longer than 12 years before analog films are no longer available has worked in the giant-screen industry for greater than 12 years. Three of the five participants who stated they have worked in the giant-screen field for less than two years felt it would be between zero and three years before analog films are no longer available, the other two chose four to seven years. The five participants who stated they had been working in the GS field for five to 10 years replicated this finding. For those working in the GS field two to five years five out of the ten believed it will be four to seven years, four believed it will be two to five years, and one selected greater than 12 years before analog films will no longer be available. A majority, four out of six, who stated they have been working in the GS field 10 to 12 years believe that it will be zero to three years before analog films are obsolete, one believes it will be four to seven years, and one other believes it will be 10 to 12 years before this occurs.

Discussion

This study explored the shift in knowledge, attitudes and awareness towards DIGSS by GSCA 2010 Conference attendees. Findings of the measurements employed suggest the information campaign engaged in at the Conference was largely successful at increasing Conference attendee's knowledge about, positive attitudes toward, and awareness of DIGSS and the process associated with creating DIGSS.

These findings also bring up questions about potential differences that exist in the giant-screen community on the topic of conversion from digital to analog. Why do those who identify as managers in museum/educational organizations feel stronger than those in film making/production/ distribution and others that the conversion to digital is inevitable? This question would suggest the perceptions and expectations of the venue operators and their perceptions about consumer demand are not in line with the perceptions and expectations of those supplying the product (film making/production/distribution). Further exploration of this discrepancy may help to resolve a potential challenge in the business case supporting DIGSS and may even suggest that some venue operators may feel the need to convert before DIGSS is finalized.

Museum/educational organization managers felt significantly stronger than film producers/distributors that films should fill the entire screen in giant flat and dome theaters. This result suggests that venue operators feel there is unique value to the existing format that they wish to retain, but the producers may be encouraged to move away from DIGSS formats for commercial reasons. Further exploration of this discordance as DIGSS is developed will be essential for understanding the likelihood of adoption by the production side of the industry.

Our findings also revealed the possibility of differences in opinion surrounding the urgency for conversion based on the lack of support for the analog film format. Those with greater than twelve years of work experience were much more likely to believe the analog format will be durable for another decade, while those new to the field are more likely to support early conversion. This may suggest that either those working in the industry longer are more in tune with trends and changes occurring than their newer peers, or it could suggest the opposite in that the longer affiliated participants are less willing to accept the pace at which digital conversion is overtaking the commercial market. This finding may suggest that there is a lack of willingness to embrace digital among the longer affiliated participants, or an over-eager willingness to embrace digital among the shorter term affiliated participants. In either case, it would seem that rapid change will be unlikely if senior managers are unwilling to support conversion, even though the new generation entering the field will be pressing for that conversion. Focus on conversion timelines and reconciliation of production and inventory expectations as business case analysis will help to redress this discordance.

Conclusion



The presentation at the GSCA 2011 Conference was successful in increasing knowledge about, positive attitudes toward, and awareness of DIGSS among Conference attendees. These results suggest that Conference attendees affiliated with institutional theaters are more likely to be concerned about the issue and are more focused on the time and cost associated with conversion than those representing the film production arm of the industry. Venue operators are likely more aware of and have a greater investment in the process and outcomes of DIGSS. Recommendations in moving forward would be to maintain the potential momentum that was built for DIGSS by the Conference information campaign by maintaining contact with those who were in attendance and finding ways to incorporate as many of these voices into the process as possible. Our findings suggest that this is an active and engaged professional community who will embrace DIGSS but may have challenges with the business case as GS professionals in production are drawn toward more commercial enterprise. Ensuring that the flow of information is unhindered and reliable information is made available through a variety of channels should help to maintain the positive attitudes the field has towards the development of DIGSS and increase the usability and meaningfulness of the final product.