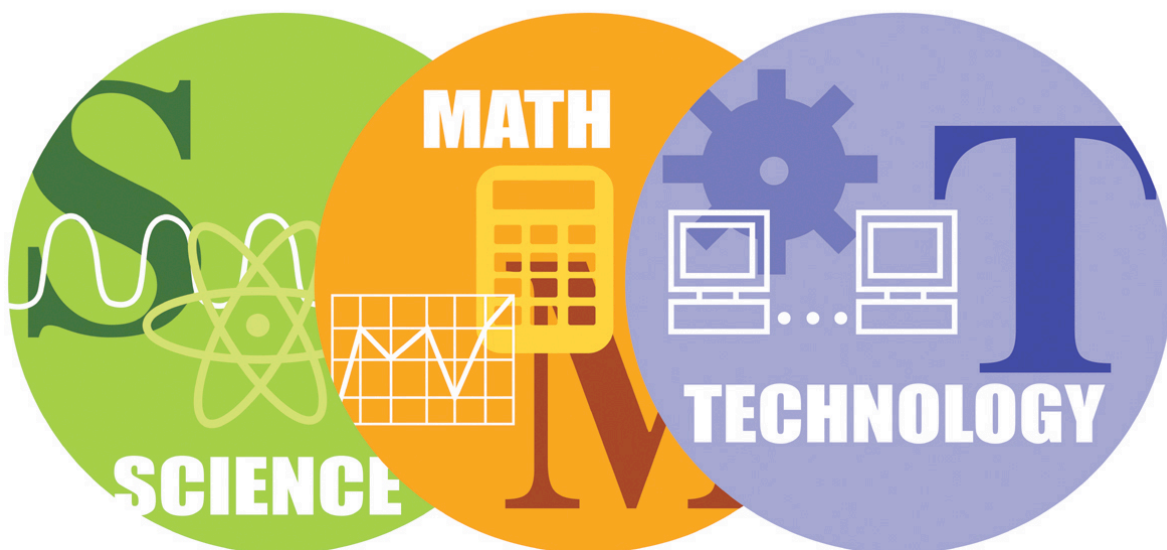


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2010

NWO Symposium  
Evaluation Report

December 2010



**Northwest Ohio Symposium on Science,  
Mathematics, and Technology Teaching**

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## **INTRODUCTION**

The Northwest Ohio Symposium on Science, Mathematics, and Technology Teaching (hereafter referred to as the NWO Symposium) is a regional conference for STEM educators in Northwest Ohio. On November 6, 2010, the Northwest Ohio Center for Excellence in STEM Education (NWO) held its annual NWO Symposium at Penta Career Center in Rossford, Ohio. The purpose of this report is to describe the evaluation of the 2010 NWO Symposium. The report will begin with a description of the evaluation methods, followed by a description of the NWO Symposium, including the characteristics of the vendors and presentation sessions. The report will then summarize the attendees', presenters', and vendors' perceptions of the event before making recommendations for future events.

## **EVALUATION METHODS**

The purposes of the evaluation were to: (1) determine the quality of the NWO Symposium, primarily indicated by the attendees' perceptions regarding the value and usefulness of the Symposium, (2) document changes made in response to past recommendations, and determine the impact of those changes on the quality of the NWO Symposium, and (3) identify ways in which future NWO Symposia might be improved.

These purposes were accomplished by analyzing data from the session evaluation surveys, attendee evaluation survey, and presenter and vendor evaluation surveys. In addition, the 2009 and 2010 NWO Symposium program books were reviewed to determine the nature of the presentation sessions. The recommendations from the 2009 NWO Symposium were also consulted in order to determine the extent to which appropriate changes were made for the 2010 NWO Symposium.

## ***DATA COLLECTION INSTRUMENTS AND PROCEDURES***

This section will describe the instruments and procedures used to collect data from the NWO Symposium participants. The instruments include the session evaluation survey, attendee evaluation survey, and presenter and vendor evaluation survey.

## *Session Evaluation Survey*

The session evaluation survey consisted of the following statements, to which the participants rated their level of agreement on a four-point scale (1=Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Agree):

1. The session was engaging.
2. The information presented during the session was valuable.
3. I learned something new from the session.
4. The educational community would benefit from knowing the information presented during the session.
5. The session was easy to follow and well organized.

The session evaluation survey also provided participants an opportunity to offer comments about the session and/or presenter. The prompt on the survey read, “Please use the box below to tell us about your perceptions of the session in your own words. You can include comments (good or bad) about the session, as well as your perceptions about the value and applicability of the information presented during the session”.

The attendees were asked to complete one survey for each session they attended. Eight surveys – one for each session – were provided to the attendees in an envelope at registration. Attendees were asked to complete the surveys, put them back in the envelope, and return the envelope at the end of the day. This procedure is different than what has been used in the past. In previous years, session evaluation surveys were handed out by the presenters at the end of each session. The attendees were asked to complete the survey and hand it back to the presenter before moving to the next session. However, presenters sometime forgot or did not have time to hand out the surveys. Also, because of the limited time given to complete the surveys, many attendees did not leave comments, and many other attendees simply did not complete the surveys at all. The “envelope procedure” used this year provided more time to the attendees to complete the evaluations, and likely offered more confidentiality since the attendees did not give the evaluations to the presenter being evaluated. **In contrast to the 2009 session evaluation surveys, most of the surveys collected during the 2010 NWO Symposium included written comments from the attendees, which will help improve the sessions for future NWO Symposia.**

### *Attendee Evaluation Survey*

The attendee evaluation survey was an online survey that consisted of 21 items regarding the attendees' demographic information (e.g., professional status, teaching information) and perceptions regarding the NWO Symposium. The perception items were primarily about the sessions, but also asked about the vendors, venue, food, and program book. The section regarding the attendees' perceptions of the Symposium sessions included five items measured on a four-point Likert scale with 1=Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, and 4=Agree. Sample items include, "The sessions I attended were engaging" and "I will incorporate the information/resources from the Symposium into my professional practices (e.g., teaching, administration, etc.)". The items regarding the attendees' perceptions of the vendors, food, program book and venue were measured on a four-point Likert scale with 1=Poor, 2=Average, 3=Good, and 4=Excellent. The survey also included several open-ended items to solicit attendees' comments and suggestions about the NWO Symposium.

The link to the attendee evaluation survey was included in an e-mail sent to the attendees following the NWO Symposium. Reminder e-mails were sent to the attendees who did not complete the survey after one and two weeks. **The overall response rate for the attendee evaluation survey was 69%.** The response rates for each type of attendee are included in the table below.

Status	Attendance	Responses	Response Rate
PK-12 Teacher	85	73	86%
Pre-service Teacher	58	24	41%
Higher Ed. Faculty	10	7	70%
School Administrator	4	3	75%
Other	11	9	82%
<b>Total</b>	<b>168</b>	<b>116</b>	<b>69%</b>

### *Presenter and Vendor Evaluation Survey*

The presenter and vendor evaluation survey was an online survey that consisted of 14 to 18 items (depending on the whether the respondent was a presenter, vendor, or both) regarding the presenters' and vendors' perceptions about the success of the NWO Symposium, and the overall quality of the NWO Symposium. The items regarding the participants' perceptions were mostly open-ended. The items regarding the overall quality of the NWO Symposium were measured on a four-point Likert scale with 1=Poor, 2=Average, 3=Good, 4=Excellent. The survey also included several open-ended items to solicit the presenters' and vendors' comments and suggestions about the NWO Symposium.

The link to the presenter and vendor survey was included in an e-mail that was sent to the presenters and vendors following the NWO Symposium. Reminder e-mails were sent to those who did not complete the survey after one and two weeks. **The overall response rate for the presenter and vendor survey was 61%.** The response rates for each type of presenter/vendor are included in the table below.

Status	Attendance	Responses	Response Rate
Higher Ed. Staff or Faculty	48	25	52%
PK-12 Teacher	28	27	96%
Other	65	34	52%
<b>Total</b>	<b>141</b>	<b>86</b>	<b>61%</b>

### **2010 NWO SYMPOSIUM**

The 2010 NWO Symposium was held November 6, 2010 at Penta Career Center in Rossford, Ohio. The Symposium began at 8:00 A.M. and concluded at 4:00 P.M. A light breakfast was provided in the morning, lunch was served from 11:00 A.M. to 1:00 P.M., and refreshments were provided in the afternoon. The vendor area, which included 25 exhibits, was open to the attendees all day.

A total of 120 sessions were offered during the NWO Symposium, with about 17

being offered every hour. Many of the sessions were “double sessions”, meaning they lasted for two hours instead of one. Also, many of the sessions were “repeated sessions”, meaning they were offered more than one time during the day. **Accounting for the repeated sessions, there were 81 unique sessions that were offered one or more times during the Symposium.** Most of the sessions addressed issues in science education, but there were also many sessions that addressed issues in mathematics education and educational technology. The table below summarizes the number of sessions that addressed science, mathematics, and technology during the 2009 and 2010 NWO Symposia.

Content	2009 NWO Symposium		2010 NWO Symposium	
	# of sessions	% of sessions	# of sessions	% of sessions
Science	47	60%	56	47%
Mathematics	12	15%	30	25%
Technology	16	20%	32	27%
<b>Total</b>	<b>78</b>		<b>120</b>	

The only recommendation from the 2009 NWO Symposium was to increase the number of mathematics and technology sessions, due to an increasing attendee demand. The table above demonstrates that the attempts made to increase the number of mathematics and technology sessions were successful. Although the 2010 Symposium still included more science than mathematics and technology sessions, **the attempts to increase mathematics and technology sessions in 2010 resulted in a more balanced delivery of STEM content than the 2009 Symposium.**

One striking difference between the 2009 and 2010 Symposia is the number of sessions that were offered; the 2010 Symposium included 42 more sessions than the 2009 Symposium. The large (54%) increase in session offerings was due to some organizational changes in the 2010 NWO Symposium. In 2009, sessions were offered during five hours during the day; the rest of the time was used for breakfast and a keynote session, lunch, and an hour for browsing the vendor exhibits. In 2010, a keynote session was not offered, and time was not explicitly set aside for lunch and vendor browsing. Instead, lunch was

served over two hours to reduce crowding and to give teachers flexibility to browse the vendor exhibits. Sessions were still offered during the lunch hours, so teachers could choose to attend another session instead of browsing the vendor exhibits. As a result of these changes, sessions were offered during all eight hours of the 2010 Symposium.

**There were a total of 322 participants in attendance at the 2010 NWO Symposium.** The table below displays a detailed summary of the attendance at the 2009 and 2010 NWO Symposia.

Participants	2009 NWO Symposium	2010 NWO Symposium
Attendees		
PK-12 Teacher	238	85
Pre-service Teacher	157	58
Higher Ed. Faculty	25	10
School Administrator	5	4
Other	16	11
Total Attendees	441	168
Presenters & Vendors	127	141
NWO Staff & Volunteers	20	13
<b>TOTAL</b>	<b>588</b>	<b>322</b>

As demonstrated in the table above, the attendance at the 2010 NWO Symposium was drastically lower than the attendance at the 2009 Symposium. According to the presenters who completed the online evaluation survey, the average session attendance was 10. The 45% decrease in attendance from 2009 is likely due to the fact that the attendees were required to pay a registration fee in 2010, whereas the event had been free in years past.

Although many of the participants at the 2010 NWO Symposium had attended in previous years, most were attending or participating as vendors or presenters for the first time. According to the results of the online evaluation surveys, **almost 43% of attendees (not presenters and vendors) reported that 2010 was their first year attending the NWO Symposium.** Another 23% reported that 2010 was their second year attending the

NWO Symposium. **In addition, 51% of presenters and vendors reported that 2010 was their first time participating as such in the NWO Symposium.** Many (21%) had participated in previous NWO Symposia only as attendees, and others (30%) had never attended or participated in previous NWO Symposia.

Participants who completed the online surveys reported learning about the 2010 NWO Symposium in several ways, but most reported learning about the Symposium by e-mail or from a colleague. The table below shows the percentage of participants who reported learning about the Symposium by each of seven methods.

How did participants learn about the 2010 NWO Symposium?	Percentage of Participants (n=202)
E-mail message from NWO/COSMOS	61.8%
Told by a colleague	24.2%
NWO Inquiry Series	12.9%
College course	10.9%
The NWO or Symposium website (accessed independently of the e-mail message from NWO/COSMOS)	10.0%
Postcard	5.0%
Advertisement in The Blade or The Mirror	0%

## PERCEPTIONS OF THE 2010 NWO SYMPOSIUM

### *ATTENDEE PERCEPTIONS*

The attendees' perceptions of the 2010 NWO Symposium were collected from the session evaluation surveys and the online attendee evaluation survey.

The number of evaluation surveys that were completed for each session further reflects the low attendance at the 2010 NWO Symposium. The combination of lower overall attendance and a larger number of sessions resulted in low attendance in most of the sessions. The average number of completed evaluation surveys for each session was 6, compared to 11 for the 2009 Symposium.

**Overall, the responses on the session evaluation surveys indicated that**



**attendees perceived the sessions to be engaging and valuable.** The table below shows the average score for each item on the survey.

Survey Item	Average Score
The session was engaging	3.62
The information presented during the session was valuable	3.73
I learned something new from the session	3.79
The educational community would benefit from knowing the information presented during the session	3.73
The session was easy to follow and well organized	3.70
<b>Total</b>	<b>3.72</b>

Note: 1=Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Agree

The responses to the online evaluation survey also indicated that the attendees perceived the 2010 NWO Symposium to be a high-quality professional development experience. The table below shows the responses to some of the items on the survey.

Survey Item	Responses (n=115)				Average Score
	Disagree	Somewhat Disagree	Somewhat Agree	Agree	
The sessions I attended were engaging	0	1	34	80	3.67
The information presented during the Symposium was important to me	0	2	32	81	3.69
I will incorporate the information/resources from the Symposium into my professional practices (e.g., teaching, administration, etc.)	0	2	28	85	3.72
I learned something new from the sessions I attended	0	0	16	99	3.86
As a result of the NWO Symposium, I feel more excited about the teaching and learning of science, math, and/or technology	0	3	36	76	3.63

Attendees also ranked the 2010 NWO Symposium on several factors, including the vendor exhibits, the program book, the food, the venue, and the NWO Symposium overall. The responses to these items are shown in the table below. Attendees from the 2009 and 2010 NWO Symposia generally rated each factor similarly. The only exception is the food rating, which was substantially lower for the 2010 NWO Symposium. Several qualitative responses supported this finding; many attendees requested different food choices for the future.

Survey Item	Responses (n=114)				Average Score 2010	Average Score 2009*
	Poor	Average	Good	Excellent		
Vendor Exhibits	2	33	62	17	2.8	3.0
Program Book	0	3	34	77	3.6	3.6
Food	13	22	47	32	2.9	3.6
Venue	0	3	25	86	3.7	3.8
Overall	0	6	49	59	3.5	3.6

Note: 1=Poor, 2=Average, 3=Good, 4=Excellent

\* From the 2009 NWO Symposium Evaluation Survey (n=394)

**When asked if they would attend again, 64% of the attendees reported they would be very likely to attend next year**, and 23% reported they would be moderately likely to attend next year. Only 3% reported they would be not at all likely to attend next year.

The qualitative responses collected from the Attendee Evaluation Survey were analyzed to identify themes among the attendee responses. One major theme was attendees' perceptions of the presenters. Many attendees positively commented that the presenters were well prepared, enthusiastic, and knowledgeable. Another theme was attendees' perceptions of session variety. Several attendees commented on the wide variety of sessions that were available to choose from. Some of the attendees said:

*I liked the variety of topics covered, and the fact that it felt like there were many*

*different sessions that touched on each sub-STEM group (physical science, math, technology, etc).*

*I am impressed with the high quality sessions! Lots of choices for a wide range of interests. Well done!*

*I always enjoy the wide spectrum of topics offered at the [NWO] symposium.*

Another theme among the attendees' qualitative responses was the applicability of the NWO Symposium information. These responses augment the finding that 74% of attendees agreed with the following statement in the online evaluation survey: "I will incorporate the information/resources from the Symposium into my professional practices (e.g., teaching, administration, etc.)". The qualitative responses indicated that many attendees were planning to use (or were already using) the resources/knowledge gained at the NWO Symposium in their classroom. Some attendees said:

*I attended several that were incredible and very informative. They were wonderful and I will certainly be using those strategies in my classroom!*

*I have already started using some of the technology I learned that day and am satisfied with how I am using it.*

### **PRESENTER AND VENDOR PERCEPTIONS**

The presenters' and vendors' perceptions of the 2010 NWO Symposium were collected from the online presenter and vendor evaluation survey. Out of the 86 respondents, 67% participated in the 2010 NWO Symposium as a presenter only, 17% participated as a vendor only, and 15% participated as both a presenter and vendor.

The presenters and vendors were asked to rank the 2010 NWO Symposium on several factors, including organization of the event, room set-up (for presenters), exhibit space (for vendors), available technology, volunteer assistance, the venue, the food, the Symposium staff, and the Symposium overall. The results from these items are shown in the table below. **The responses to these items indicate a positive overall experience,**

with improvements possibly necessary regarding exhibit space and food (which is also in line with responses from the attendee evaluation survey).

Survey Item	n	Responses					Average Score 2010
		Poor	Average	Good	Excellent	N/A	
Organization	80	0	3	12	65	0	3.8
Room Set-up	79	0	3	27	41	8	3.5
Exhibit Space	66	1	1	22	24	18	3.4
Available Technology	78	1	3	16	42	16	3.6
Volunteer Assistance	80	1	4	18	45	12	3.6
Venue	78	0	0	11	65	2	3.9
Food	79	2	13	32	16	16	3.0
Staff	78	0	2	9	66	1	3.8
Overall	79	1	2	27	49	0	3.6

Note: 1=Poor, 2=Average, 3=Good, 4=Excellent

The presenters and vendors were also asked to comment about the success of their sessions and/or exhibit. Most of the presenters and vendors perceived their sessions/exhibits to be successful based on the attendees’ engagement and interest in their activities/exhibit and the verbal feedback they received from the attendees. Many presenters and vendors mentioned that the attendance was lower than expected, and they were disappointed by the low turnout. However, most presenters and vendors perceived their sessions/exhibits as successful despite the low attendance.

When asked about their participation in next year’s NWO Symposium, 41% reported that they would be moderately likely and 36% reported that they would be very likely to participate as a presenter and/or vendor. When asked if their participation in the 2010 NWO Symposium was worthwhile, 52% responded “Definitely”, 41% responded “Moderately”, and 7% responded “Very slightly” or “Not at all”. Many of the presenters and vendors explained that their participation was worthwhile because of the available networking opportunities. Two of the presenters/vendors wrote:

*I was able to share information and also make contacts for other professional activities.*

*It is always great to interact with your peers.*

However, many presenters and vendors suggested that their participation was not as worthwhile as it could have been due to the low attendance. Some of the presenters/vendors wrote:

*Attendance was down this year . . . so much so that I'm not sure it was worth our effort to be present as a vendor.*

*Our session had only 8 participants, so the amount of time spent in preparation for the session was quite a lot for such a small group.*

*Disappointed that there weren't more people there. Many sessions had just a handful of participants.*

The qualitative responses from the Presenter and Vendor Evaluation survey were analyzed to identify themes among the responses. Again, the most salient theme throughout the responses was low attendance. Several of the presenters/vendors also commented about the registration fee, which was new for the 2010 NWO Symposium.

## **SUGGESTIONS FOR FUTURE SYMPOSIA**

The suggestions for future NWO Symposia were made based on the comments and suggestions of the 2010 NWO Symposium participants as well as the observations of the evaluator and NWO staff.

### **1. Re-examine the attendee registration fee.**

Several of the presenters and vendors indicated that the registration fee may have been partly responsible for the low attendance, and therefore suggested that it be reduced or eliminated. Some of the presenters/vendors wrote:

*I think the new charge may have scared people away. If I hadn't been a presenter (and*

*therefore free), I'm not sure I would have paid for the experience.*

*I might suggest working with schools to find some way to make a multiple participant discount. Many teachers are becoming more financially strapped since many now need to pay for their healthcare so anything you can do to keep the cost at a minimum would be beneficial!*

*I think keeping the symposium free of charge is best. I believe \$35 or more to attend kept some people away.*

The decision to instate a registration fee for the 2010 NWO Symposium was due to the lack of funding for the Symposium. Therefore, the reduction or elimination of the registration fee for future Symposia may not be an option, especially if the funding levels remain as they were for the 2010 NWO Symposia. However, since a reduction or elimination of the registration fee would likely improve attendance, and since attendance was significantly lower in 2010 than in the past, a re-examination of the registration fee is highly recommended.

## **2. Designate a specific time during the NWO Symposium when attendees can visit the vendor exhibits.**

A different lunch schedule was piloted during the 2010 NWO Symposium to encourage attendees to browse the vendor exhibits. In 2009, one hour was allocated for lunch (no sessions were offered during that time) and an hour was allocated at the end of the day for attendees to browse the vendor exhibits. In 2010, lunch was served over two hours to reduce crowding and to give teachers flexibility to browse the vendor exhibits. Sessions were still offered during the lunch hours, so teachers could choose to attend another session instead of browsing the vendor exhibits. The vendors gave many positive comments about the “split lunch” format, and overall seemed to encourage the continuation of the format for future Symposia. One vendor, however, stated that the format might have been better if sessions had not been offered at the same time. Along the same line, some teachers reported not eating because they did not want to miss any of the sessions that were offered during the lunch hours. It is recommended, therefore, that the split lunch format be continued but that sessions not be offered during those hours. This

would reduce crowding, provided greater flexibility, and explicitly provide time for browsing vendor exhibits.

### **3. Include a keynote presentation at the beginning of the Symposium**

Some of the presenters and vendors commented about the absence of a keynote speaker for the 2010 NWO Symposium. The addition of a keynote presentation at the beginning of future Symposia would provide an opportunity for staff to welcome attendees and make announcements, and would allow attendees to greet each other and organize their day (e.g., choose which sessions they want to attend). A keynote speaker may also motivate more people to attend future Symposia.

### **4. Decrease the number of sessions that are offered at the Symposium.**

The most salient comment among the presenters was the low attendance at the 2010 NWO Symposium. Many of the presenters reported preparing for significantly more people than who attended their session. Attendees also commented about the low attendance, mostly suggesting that session discussions would have been stronger and more meaningful if more people had attended. The low session attendance (average of 10) was likely due to the combination of low overall attendance and an increased number of offered sessions for the 2010 NWO Symposium. Therefore, one potential solution is to decrease the number of sessions that are offered for future Symposia. The removal of the lunch sessions and addition of a keynote speaker will help to reduce the number of sessions in the future. In addition, repeated sessions could be eliminated in order to decrease the number of sessions during each hour of the Symposium. Therefore, even if the overall attendance remains low, a smaller number of sessions would result in higher per session attendance.

### **5. Include a chart of sessions in the program book.**

A few attendees suggested that a chart of sessions be included in the program book in order for attendees to visualize all of the sessions offered during the day. Although this suggestion was not mentioned by a large number of people, it may be a useful planning tool for NWO Symposium attendees.

## **6. Develop a new system of labeling sessions in the program book.**

In 2010, as has been the practice in the past, sessions were labeled in the program book as Earth/Space Science, General Science, Life Science, Mathematics, Pedagogy, Physical Science, Pre-Service, and/or Technology according to their content. These labels, in addition to the session summary, are meant to provide the attendees with an idea of what the session is about, and whether or not it would be meaningful to attend. However, in many cases, all of the labels were applied to one session, thus making it difficult to discern what the session was really about. If a new labeling system was developed, attendees might be able to better decide which sessions would be beneficial for them to attend. If a chart of sessions is created in the future, as suggested above, it would be especially important for the labeling system to be meaningful since the would chart would likely only include labels for each session.

## **7. Offer more technology and mathematics sessions, as well as sessions that focus on special needs education, cross-curricular education, and the new Ohio standards.**

This suggestion is based on the attendees' responses to the following question: What educational issues/topics would be beneficial to address at the NWO Symposium next year? The most common responses were mathematics and technology integration. Even though the 2010 NWO Symposium was more balanced than in the past in terms of its content, attendees still suggested that more technology and mathematics sessions be offered. Attendees also suggested that it would be helpful to learn about cross-curricular education, special needs education, and the new Ohio standards.

## **8. Offer different food choices than what was offered for the 2010 NWO Symposium.**

While some participants made positive comments about the food, many attendees, presenters, and vendors suggested that different food choices be offered in the future. The food was the only aspect of the NWO Symposium that received substantially lower ratings in 2010 than in 2009.