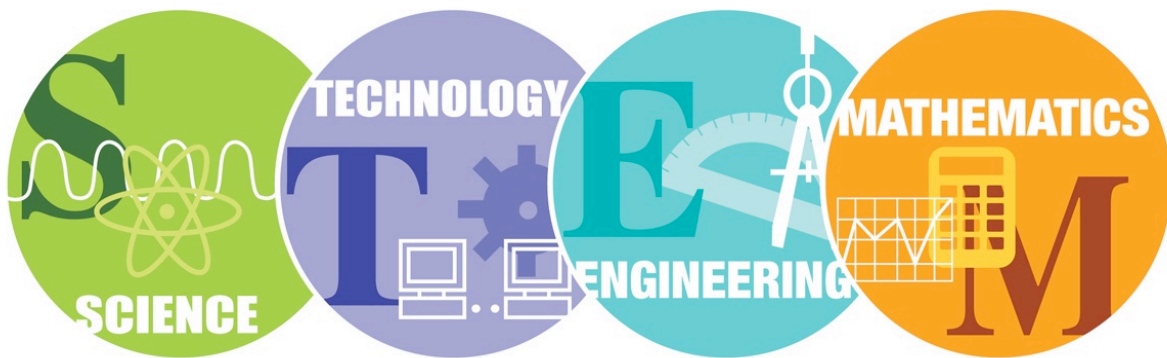


2013



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

Evaluation Report

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February 2014

The Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching (hereafter referred to as the NWO Symposium) is a regional conference held by the Northwest Ohio Center for Excellence in STEM Education (NWO) for STEM educators in northwest Ohio. The tenth annual NWO Symposium was held on November 2, 2013 at Bowling Green State University. The 2013 Symposium began at 7:30 A.M. and concluded at 3:40 P.M. The thirteen vendor/exhibitor tables were open from 8:00 A.M. until 12:40 P.M.

This report describes the findings of the 2013 NWO Symposium evaluation. The report begins with a description of the 2013 NWO Symposium participants and sessions, continues with an analysis of the attendee and presenter/vendor perceptions of the event, and ends with several recommendations for the 2014 NWO Symposium.

2013 NWO Symposium Attendance

A total of 348 participants (attendees, presenters, vendors, staff and volunteers) attended the 2013 NWO Symposium. Table 1 displays a detailed summary of the attendance at the 2013 NWO Symposium as well the attendance numbers from the previous three NWO Symposia.

Table 1. NWO Symposium attendance from 2010 to 2013

Participants	2010	2011	2012	2013
Attendees				
PK-12 Teacher	85	118	130	136
Pre-service Teacher	58	41	157	97
Higher Ed. Faculty	10	9	28	33
School Administrator	4	2	2	5
Other	11	4	2	11
Total Attendees	168	174	319	282
Presenters & Vendors	141	81	71	59
NWO Staff & Volunteers	13	12	22	7
TOTAL	322	267	412	348

As demonstrated in the table above, the total attendance at the 2013 NWO Symposium was 12% lower than the attendance at the 2012 Symposium. The lower overall attendance can be attributed solely to the 38% decrease in pre-service teachers. All other kinds of attendees (e.g. in-service teachers, higher education faculty) increased in 2013. The increase in faculty attendance

can be attributed to the special “faculty-specific” sessions offered at the 2013 NWO Symposium, and the corresponding marketing efforts targeted at local institutions of higher education.

Although some of the attendees at the 2013 NWO Symposium had attended in previous years, most were attending for the first time. In fact, over 60% of attendees (not presenters and vendors) who completed the evaluation survey reported that 2013 was their first year attending the NWO Symposium. The majority (52%) of presenters and vendors (who completed the evaluation survey) were also participating for the first time in 2013. However, many of the presenters and vendors (22%) reported that 2013 was their second or third year participating in the NWO Symposium and almost a fourth (24%) reported participating for four or more years. According to the results of the evaluation survey, most of the 53 total presenters and vendors were preK-12 teachers (54%), college or university faculty (20%), or employees of non-profit educational institutions (11%).

Participants who completed the online evaluation surveys reported learning about the 2013 NWO Symposium in several ways, but most reported learning about the Symposium by e-mail or from a university professor or instructor. Table 2 shows the percentage of participants who reported learning about the Symposium by each of the nine methods listed on the surveys.

Table 2. Methods by which participants learned about the 2013 NWO Symposium

Method	Percentage of Participants (n = 302)
E-mail message from NWO/COSMOS	33.4% (101)
University professor/instructor	23.5% (71)
Told by a friend or colleague	12.3% (37)
Flyer	2.6% (8)
NWO newsletter	6.9% (21)
Postcard	8.6% (26)
NWO Inquiry Series	3.6% (11)
OSLN (Ohio STEM Learning Network) website	<1% (3)
NWO Resource Center	1.3% (4)
Other	6.6% (20)

When asked what they were hoping to learn or acquire at the 2013 NWO Symposium, most attendees responded that they wanted new ideas and resources (e.g., for their classroom), and many expected to learn about the new science and mathematics Revised/Common Core Standards. For the presenters and vendors, many reported attending the event due to CORES requirements as well for the interactions with other educators.

2013 NWO Symposium Sessions

The 2013 NWO Symposium began with a keynote address by author Alfie Kohn who has written twelve books and spoken on topics including education, parenting, and human behavior. Five fifty-minute blocks of sessions followed the keynote address with a break for lunch provided after the second block. A total of 55 sessions were offered during the NWO Symposium, with an average of 12 sessions being offered every block. Eight sessions were “double sessions”, meaning they lasted for two hours instead of one. Most of the sessions were well attended, with attendance ranging from 4 to 36, and an average attendance of 13 (down from 18 the year before). The sessions this year were offered within six unique strands representing important topics within STEM education. Table 3 shows the number of sessions that were offered within each strand, as well as an example of a session from each. One of the most consistent suggestions from past NWO Symposium participants has been to increase the number of mathematics and technology sessions. The 2013 Symposium saw an increase in both mathematics sessions (a special thanks to the (CO)²RES project for supplying presenters for 12 of the 14 mathematics sessions). The table on the next page shows the types and numbers of sessions that were facilitated at the 2013 NWO Symposium.

Table 3. Content addressed by sessions at the 2013 NWO Symposium

Strand	Session Examples	Number and Percentage of Sessions (n = 55)
Inquiry in the College Classroom	Meeting The Challenges of Beginning STEM Majors - It's All About Engagement	5.4% (3)
Integrating Technology in the Classroom	COSI Interactive Video Conferencing – Science Delivered at the Speed of Light	16.4% (9)
Putting Creativity to Work: Teaching STEM With Innovation	G3: Game Design in the Classroom	16.4% (9)
Teaching and Learning in Science	Claim, Evidence, Reasoning	23.6% (13)
Teaching and Learning in Mathematics	“The Man Who Counted: A Collection of Integrated Adventures”	25.4% (14)
STEM in the Community: Thinking Outside the Classroom	Zoo Animals Helping STEM Learning	12.7% (7)

Evaluation of the 2013 NWO Symposium

The purposes of the evaluation were to: (1) determine the quality and impact of the NWO Symposium, primarily indicated by the participants’ perceptions regarding the value and usefulness of the Symposium, (2) document changes made to the 2013 event, 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, the attendee evaluation survey, and presenter and vendor evaluation survey.

The session evaluation survey consisted of five statements about the session (e.g, “the session was engaging”, “I learned something new from the session”), to which to the participants rated their level of agreement by circling Disagree, Somewhat Disagree, Somewhat Agree, or Agree. The survey also provided participants an opportunity to offer comments about the session and/or presenter. The attendees were asked to complete one survey for each session they attended. Five 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 year, only about two thirds of the attendees completed an evaluation for the sessions they attended. The average response rate (number of completed evaluations/number of attendees) for all of the sessions was 69%. The Symposium staff should work to improve the session evaluation response rate for the 2014 Symposium.

The attendee evaluation survey was administered online and consisted of 17 items regarding the attendees' demographic information (e.g., professional status, teaching information) and perceptions of the 2013 NWO Symposium. The attendees' perceptions of the Symposium sessions were measured with five items measured on a four-point Likert scale with - 2 = Disagree, - 1 = Somewhat Disagree, 1 = Somewhat Agree, and 2 = Agree. This scale allows for practical interpretations of the results, since 0 indicates a "neutral" attitude, positive numbers indicate a positive attitude and negative numbers indicate a negative attitude. 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 attendees were also asked to rate the vendors, food, program book and venue using 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. A total of 157 attendees completed the survey, and therefore the overall response rate for the attendee evaluation survey was 55%. This response rate is slightly higher than in 2012 (51%) but, as always, efforts should be made to increase the response rate for future symposia.

The presenter and vendor evaluation survey was administered online and consisted of 16 to 19 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. A total of 53 presenters and vendors completed the survey, and therefore the overall response rate for the presenter and vendor survey was 89%.

Attendees' Perceptions of the 2013 NWO Symposium

Overall, the responses on the session evaluation surveys indicated that attendees perceived the sessions to be engaging and valuable. Table 4 shows the average score for each item on the survey when all of the sessions are taken together.

Table 4. Attendees' average responses on the session evaluation surveys

Survey Item	Average Score (n = 55)
The session was engaging	1.50
The information presented during the session was valuable for my professional practice.	1.47
I learned something new from the session	1.58
I will share the information presented during the session with my colleagues.	1.48
The session motivated me to try innovative teaching techniques/materials.	1.39
The presenter(s) were organized and well prepared.	1.77
Total	1.53

Note: - 2 = Disagree, - 1 = Somewhat Disagree, 1 = Somewhat Agree, 2 = Agree

Individually, the sessions received positive responses from the attendees. All but one of the sessions had an average evaluation score greater than zero (indicating a generally positive attitude toward the session), and all but eight sessions had an average evaluation score greater than one. Moreover, of all the 525 individual session surveys collected during the Symposium, only 32 had an average score less than zero, which means that most individual evaluation surveys reflected an overall positive session experience.

The responses to the online evaluation survey also indicated that the attendees perceived the 2013 NWO Symposium to be a high-quality professional development experience. Table 5 shows the responses to some of the items on the survey.

Table 5. Attendees' responses on the online evaluation survey

Survey Item	Responses (n=157)				Average Score
	Disagree	Somewhat Disagree	Somewhat Agree	Agree	
The sessions I attended were engaging	0% (0)	5.1% (8)	18.5% (29)	71.9% (113)	1.57
The information presented during the Symposium was important to me	1.3% (2)	3.8% (6)	19.1% (30)	71.3% (112)	1.55
I will incorporate the information/resources from the Symposium into my professional practices (e.g., teaching, administration, etc.)	0.6% (1)	5.7% (9)	32.5% (51)	59.2% (93)	1.44
I learned something new from the sessions I attended	0.6% (1)	2.5% (4)	27.4% (43)	67.5% (106)	1.59
As a result of the NWO Symposium, I feel more excited about the teaching and learning of science, math, and/or technology	1.9% (3)	10.2% (16)	32.5% (51)	52.9% (83)	1.24

Note: -2 = Disagree, -1 = Somewhat Disagree, 1 = Somewhat Agree, 2 = Agree

Attendees also ranked the 2013 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 Table 6. In general, attendees rated the 2013 NWO Symposium higher than the 2012 event, particularly regarding the food.

Table 6. Attendees' perceptions of several aspects of the 2013 NWO Symposium

Survey Item	2013 Responses (n=157)				Average Score 2013	Average Score 2012**	Average Score 2011*
	Poor	Average	Good	Excellent			
Keynote: Alfie Kohn	4.5% (4)	8.3% (13)	22.3% (35)	64.3% (101)	3.4	N/A	N/A
Vendor Exhibits	5.1% (8)	29.3% (46)	43.3% (68)	21.7% (34)	2.8	2.8	2.6
Program Book	0% (0)	8.3% (13)	36.9% (58)	54.1% (85)	3.4	3.3	3.3
Food	1.9% (3)	12.7% (20)	25.5% (40)	59.2% (93)	3.4	3.1	2.3
Venue	0% (0)	6.4% (10)	30.6% (48)	62.4% (98)	3.5	3.5	3.5
Overall	1.9% (3)	7.6% (12)	36.3% (57)	53.5% (84)	3.4	3.4	3.0

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

* From the 2011 NWO Symposium Evaluation Survey (n=116)

** From the 2012 NWO Symposium Evaluation Survey (n=160)

The attendees' qualitative responses were mostly positive. These responses were in line with the quantitative data and served to validate it qualitatively. The keynote speaker especially received a number of positive comments. In fact, many reported feeling engaged and inspired by Alfie Kohn's address. In addition, many attendees reported coming away from the NWO Symposium with new ideas or resources to implement in their classrooms. Some of the participants wrote:

By attending this symposium I was renewed to continue in my teaching journey and stay strong to not be influenced to get the grade but by seeing the students learn.

I found many new strategies for engaging my students in the double session I attended

It was well worth attending! I got ideas out of each session I attended that I can use in my classroom teaching

When asked if they would attend again, most attendees (77%) reported they would be very or moderately likely to attend next year, and 13% reported they would be a little likely to attend next year. Only 10% reported they would be not at all likely to attend next year.

Presenter and Vendor Perceptions of the 2013 NWO Symposium

Most of the online presenter and vendor survey respondents participated in the 2012 NWO Symposium as presenters (85%), while a smaller percentage participated as vendors (9%) and both presenters and vendors (6%). Overall, the presenters as vendors perceived their participation to be worthwhile. Most of the participants reported that their participation was either definitely (74%) or moderately (16%) worthwhile. No respondents reported the event as anything less than definitely or moderately worthwhile. Most of participants who reported that their participation was worthwhile provided an explanation that had something to do with the number and receptivity of the teachers at their session/exhibit. Those who reported low attendance or limited interaction at their session/exhibit tended to rate their experience as less worthwhile than those with high attendance and interaction.

The respondents were asked to rank the 2013 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 below in Table 7. The responses to these items indicate a positive overall experience. Presenters/vendors and attendees provided similar ratings for the keynote, food, and venue, while the presenters/vendors rated the overall Symposium a little higher than the attendees. In addition, presenter and vendor ratings for the 2013 Symposium were generally similar to previous years, with the exception of exhibit space.

Table 7. Presenter and vendor perceptions of several aspects of the 2013 NWO Symposium

Survey Item	n	Responses					Average Score 2013	Average Score 2012	Average Score 2011
		Poor	Average	Good	Excellent	N/A			
Keynote	45	2.2% (1)	8.9% (4)	20 % (9)	51.1% (23)	17.8% (8)	3.5	N/A	N/A
Organization	44	0% (0)	0% (0)	25 % (11)	75% (33)	0% (0)	3.7	3.8	3.7
Room Set-up	44	0% (0)	2.3% (1)	36.4% (16)	61.4% (27)	0% (0)	3.6	3.5	3.6
Exhibit Space	29	0% (0)	3.4% (1)	31% (9)	17.2% (5)	48.3% (14)	3.3	3.0	3.4
Available Technology	46	0% (0)	4.3% (2)	23.9% (11)	69.6% (32)	2.2% (1)	3.7	3.6	3.6
Volunteer Assistance	46	2.2% (1)	2.2% (1)	30.4% (14)	54.3% (25)	10.9% (5)	3.5	3.7	3.7
Venue	45	0% (0)	2.2% (1)	28.9% (13)	68.9% (31)	0% (0)	3.7	3.6	3.8
Food	46	2.2% (1)	17.4% (8)	26.1% (12)	41.3% (19)	13% (6)	3.2	3.1	2.7
Staff	43	0% (0)	0% (0)	20.9% (9)	79.1% (36)	0% (0)	3.8	3.8	3.8
Overall	45	0% (0)	0% (0)	28.9% (13)	71.1% (32)	0% (0)	3.7	3.7	3.5

Note: 1=Poor, 2=Average, 3=Good, 4=Excellent; N/A responses are not used to calculate the average score

The presenters and vendors were also asked to comment about the success of their sessions and/or exhibit. The vendors had mixed responses, with some reporting a very successful experience, and others reporting a slightly or moderately successful experience. Most of the difference had to do with a perceived lack of vendors overall. Most of the presenters perceived their sessions to be successful based on the higher than expected attendance at their session and attendees' engagement and interest in their activities.

When asked about their participation in next year's NWO Symposium, most presenters and vendors reported they would either be very likely (39%) or moderately likely (11%) to participate. Only 16% reported that they would be a little likely to participate, and 20% reported that they would be not at all likely to participate.

Conclusions and Suggestions for the 2013 NWO Symposium

The overall perception of the 2013 NWO Symposium was positive. Attendees perceived the event to be valuable and applicable to their professional practice, and presenters and vendors perceived the event to be valuable and appreciated the opportunity to share their work. The individual sessions were rated highly by the attendees, and the keynote address received many positive comments. Most of the changes made in 2013 resulted in a better overall experience for participants at the Symposium. The return of a previously successful format (with a keynote address at the beginning and five blocks of sessions thereafter) and the increase in mathematics and technology sessions created a positive environment for all participants. In fact, several attendees positively commented about the number and variety of sessions this year. Furthermore, food this year resulted in high ratings from all participants. One attendee wrote:

I have been attending the Symposium for a few years now and always enjoy the guest speakers and the variety of workshops that are available

Overall, the evaluation findings for the 2013 NWO Symposium were positive, but participants also suggested several changes to next year's Symposium. The following three recommendations for the 2014 NWO Symposium are based on the comments and suggestions of the 2013 NWO Symposium participants as well as the observations of the evaluator and NWO staff.

1. Increase number of vendors and presenters.

While this may not have been an issue in the past, the 2013 Symposium had the lowest vendor/presenter turnout in the last 4 years. Many attendees (as well as vendors themselves) commented on this and most viewed it negatively. Considering 20% of vendors/presenters stated that they would not be likely to attend next year, the Symposium is in danger of seeing an even lower turnout in 2014 if special efforts are not taken to recruit more vendors and presenters.

2. Offer more technology sessions, as well as sessions that focus on the new Ohio standards, special education, and problem-based learning.

This suggestion is based on the participants' 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 technology (especially how to use technology in class, and how to get technology via grants or related venues), the new science and mathematics standards, special education, and problem-based learning.

3. Remind attendees throughout the day to complete the session evaluations

This year, the average response rate for the session evaluations was only 69%. To improve the response rate, the NWO Symposium staff should remind attendees throughout the day to complete the evaluations. The reminders could take several different forms, including an announcement at the beginning of the day, signage posted inside each of the session rooms, and verbal reminders from the session presenters.