

Women in STEM

Science, Technology, Engineering, & Mathematics

2018 Evaluation Report

October 2018



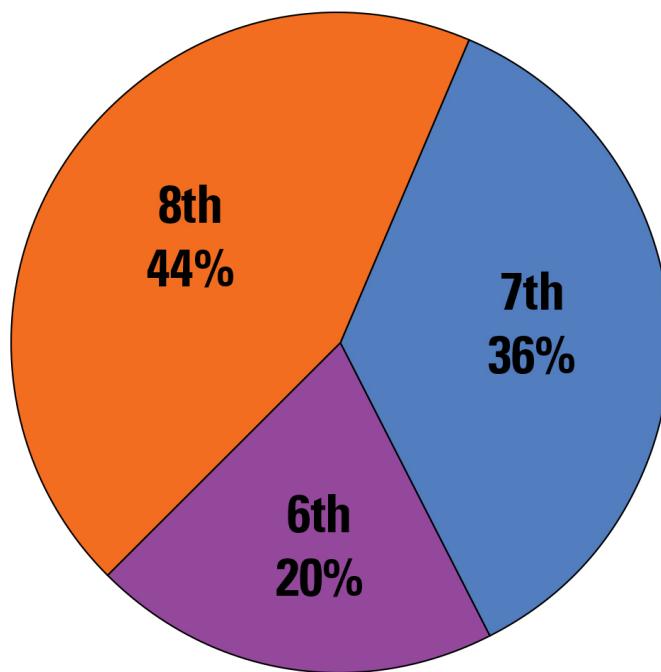
This report provides a summary of the activities and findings regarding the evaluation of the 2018 Women in STEM event. The event was held on October 30, 2018 at Bowling Green State University. This report summarizes the following information:

- Event attendance
- Event activities
- The quality of the event
- The impact of the event
- Recommendations for next year

Event Attendance

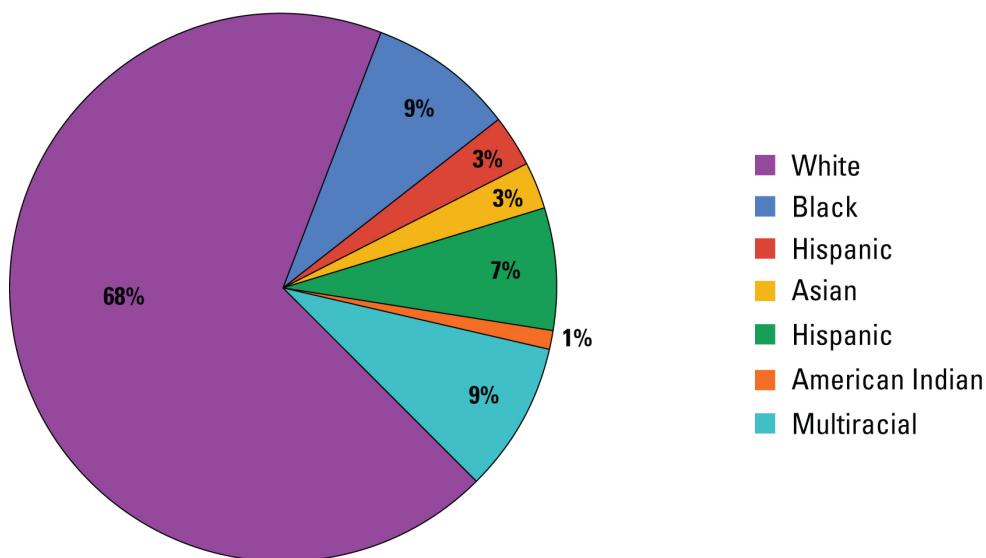
An approximate total of 416 people attended the event, including 33 chaperones/teachers, 58 session presenters/co-presenters, 5 staff/12 volunteers, and 308 female students. The figures below illustrate the distribution of the participating students who completed the evaluation and identified their grade level and race/ethnicity. The majority of the students were in 8th grade and identified as “white, non-Hispanic”.

Grades of Participating Students (n=234)*



*Of the 308 students who participated in Women in STEM 2018, 234 responded to this section of the evaluation.

Race/Ethnicity of Participating Students (n=252)*



*Of the 308 students who participated in Women in STEM 2018, 252 responded to this section of the evaluation.

Students from 19 different schools in northwest Ohio attended the event. Approximately two chaperones from each school attended with the students. Listed below are the schools that participated in the 2018 event.

Bowling Green Middle School
Chamberlin Hill
Chase Elementary
Edgerton Jr./Sr. High
Gateway Middle School
Genoa Middle School
Hicksville Middle School
Lake Middle School
Liberty Center Middle School
McTigue Junior High School
Monroeville Elementary School
Ottawa Hills Junior High School
Robinson Elementary
Seneca East Middle School
Sleek Academy LLC
St. Wendelin Catholic School
Toledo Islamic Academy
Upper Scioto Valley High School
Van Buren Middle Schoo

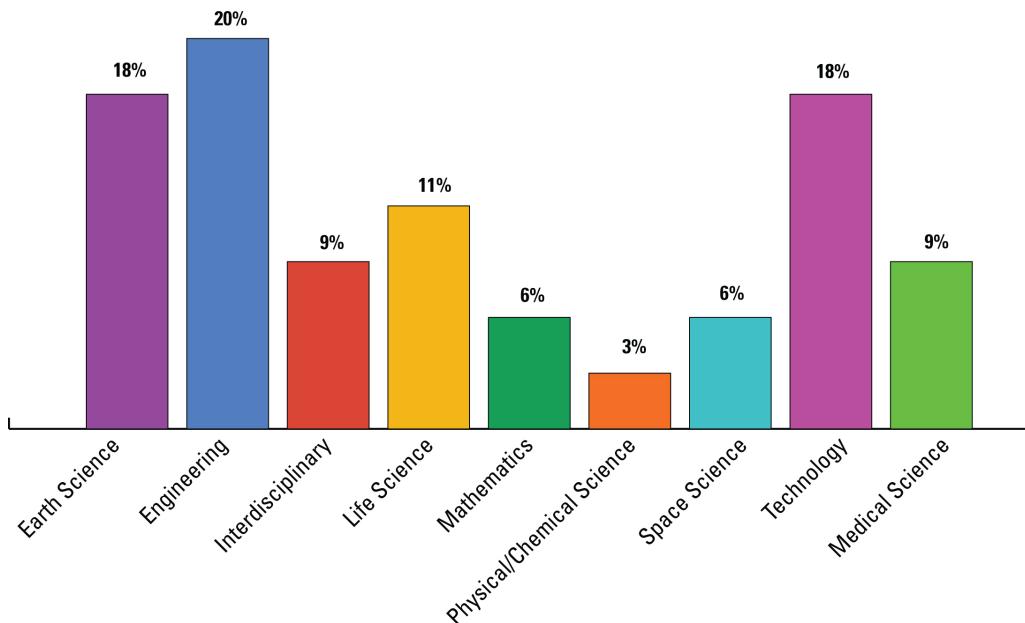
Event Activities

Women in STEM was coordinated by the Northwest Ohio Center for Excellence in STEM Education at Bowling Green State University for the fifth consecutive year. The schedule of the 2018 event is illustrated below. Students attended a keynote activity, three content sessions, and a closing activity before being dismissed at 2:00 PM. BP sponsored the opportunity for underrepresented students to attend the event.

8:30 AM – 9:00 AM	9:05 AM – 9:45 AM	9:55 AM – 10:40 AM	10:50 AM – 11:35 AM	11:45 AM – 12:30 PM	12:40 PM – 1:25 PM	1:35 PM – 2:00 PM
Check-in and Welcome	Keynote Activity with Imagination Station	Session 1	Lunch (students split)	Lunch (students split)	Session 4	Closing Remarks & Admissions Raffle
			Session 2 (students split)	Session 3 (students split)		

Students participated in sessions with their school groups throughout the day. The students attended three out of forty-five possible sessions during the event. The types of the 2018 sessions are shown below.

Women in STEM Sessions by Topic



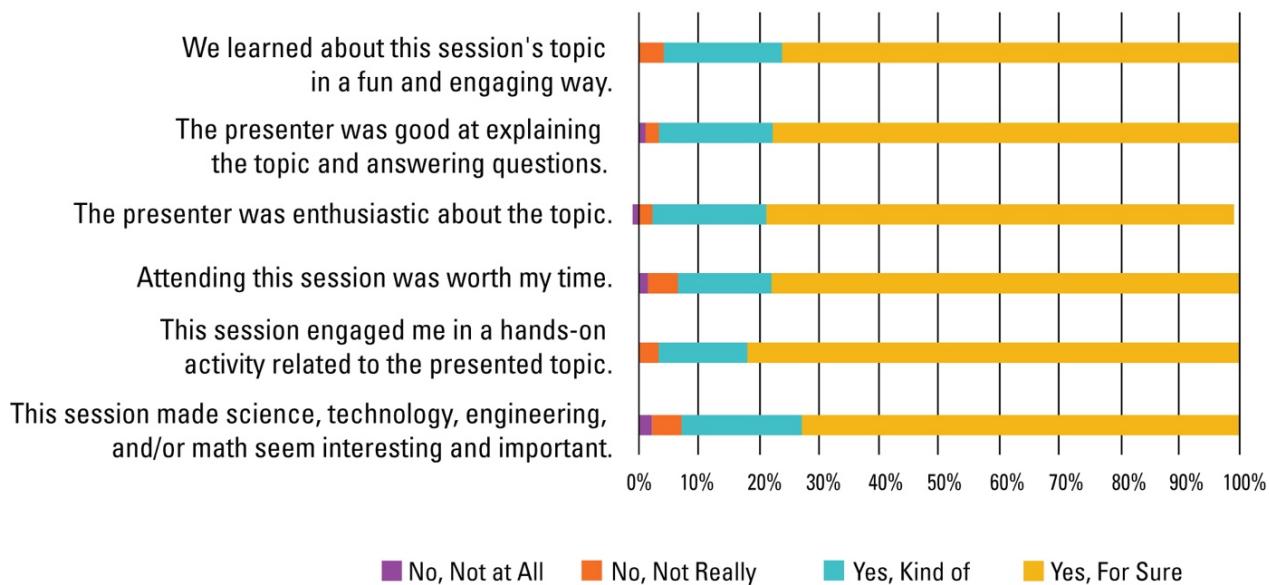
Quality of the Event

The quality of the Women in STEM event was determined by examining evaluation responses from all participants: students, presenters, and chaperones/teachers. Presenters' thoughts about the events were documented using an online post-event survey (Appendix A). Students' thoughts about the event were documented using session-specific evaluation survey and an overall survey, printed double sided for the students (Appendix B). Chaperones' thoughts about the event were documented using an overall survey (Appendix C).

From the Students' Perspective

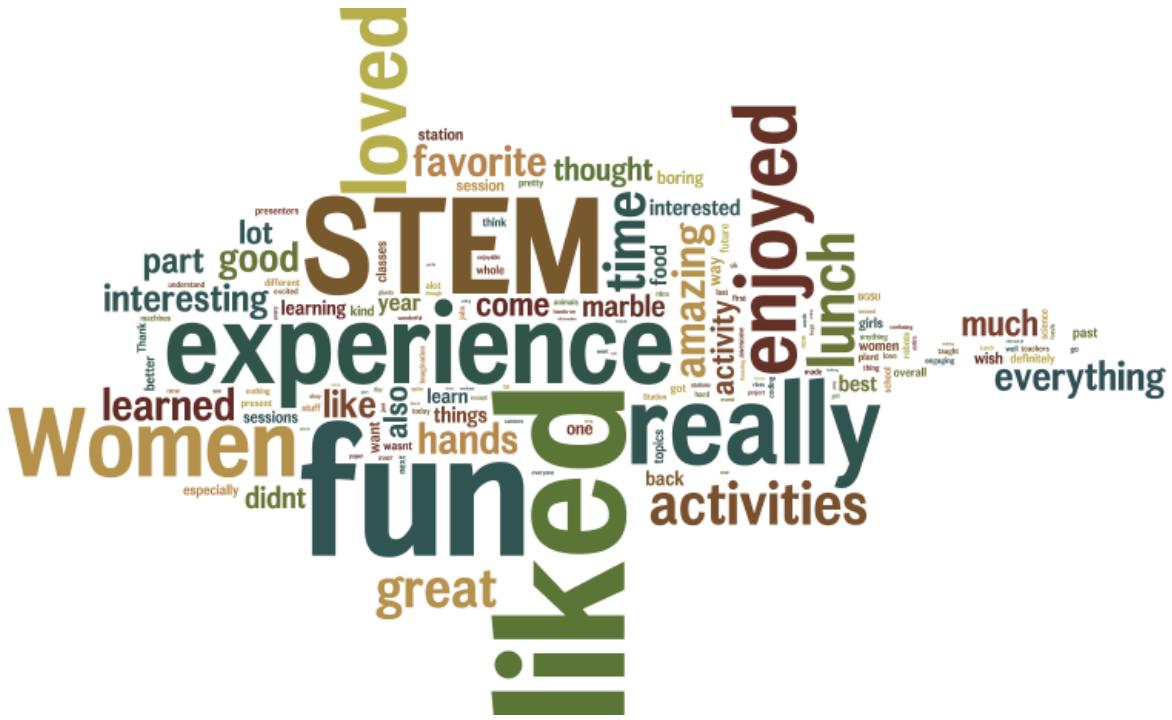
Students completed an evaluation survey for every session they attended. Session evaluation surveys were submitted for 45 unique sessions. Students were generally very positive about the sessions. They believed that the presenters were high-quality, the sessions were engaging and worth their time, and increased their interest in STEM fields of study and careers. Students agreed most with statements about the quality of the presenters (good at explaining the topic and answering questions; enthusiastic about the topic). The figure below illustrates the students' overall survey responses for all sessions where evaluations were collected.

Women in STEM 2018 Session Evaluations Overall



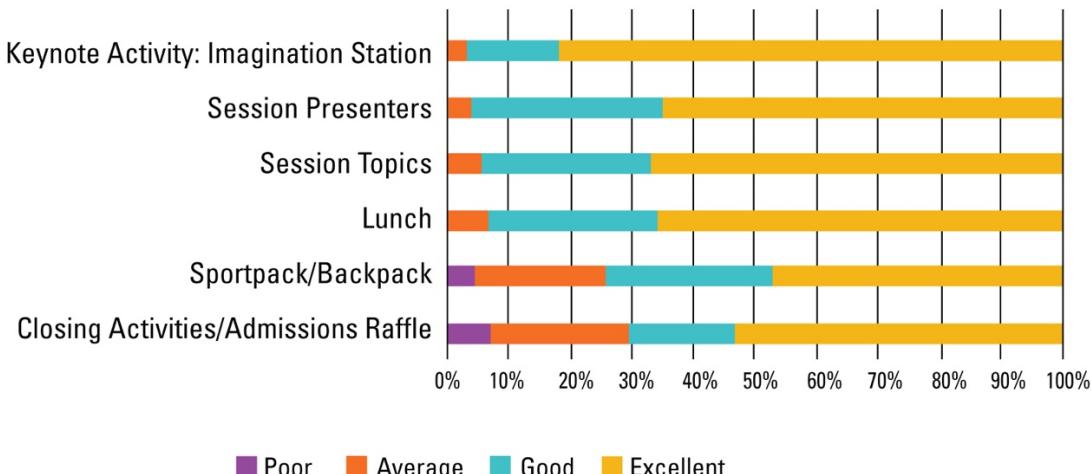
Although all sessions had a positive average rating, some sessions were (inevitably) better received than others, and some presenters conducted more than one session.

Students' written comments were also positive for the most part. The figure below is a word cloud created from the students' written comments. The size of a given word corresponds with its frequency within the students' comments. Therefore, the more times a word appears within the comments, the larger the word will be in the word cloud. As seen below, words such as "liked," "fun," "STEM" and "hands-on" were common among the students' comments.



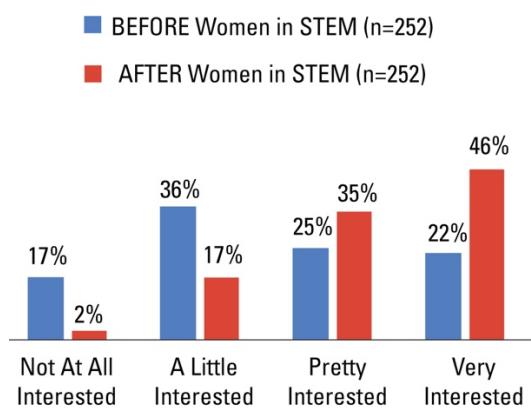
A total of 288 students completed the overall evaluation survey after the event, for a total response rate of 98%. Students' perspectives on the different aspects of the Women in STEM program are displayed below. Overall, they felt very positively about this year's event.

Students' Ratings of Key Aspect of Women in STEM 2018

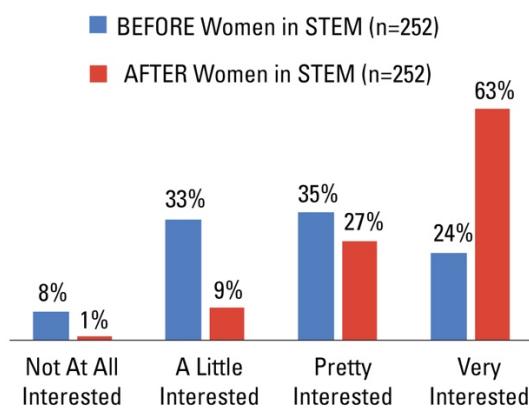


An overall evaluation survey was distributed at the end of the event. Students were asked to identify their interest in “STEM Topics” and “STEM Careers” before attending and after attending Women in STEM. Their self-reported data is below. After Women in STEM, 81% of the students reported being “Pretty or Very Interested” in STEM careers and relatedly 90% reported being “Pretty or Very Interested” in STEM topics. Appendix C contains the overall evaluation survey that was given to students and contained these questions.

Students' Interest in STEM Careers



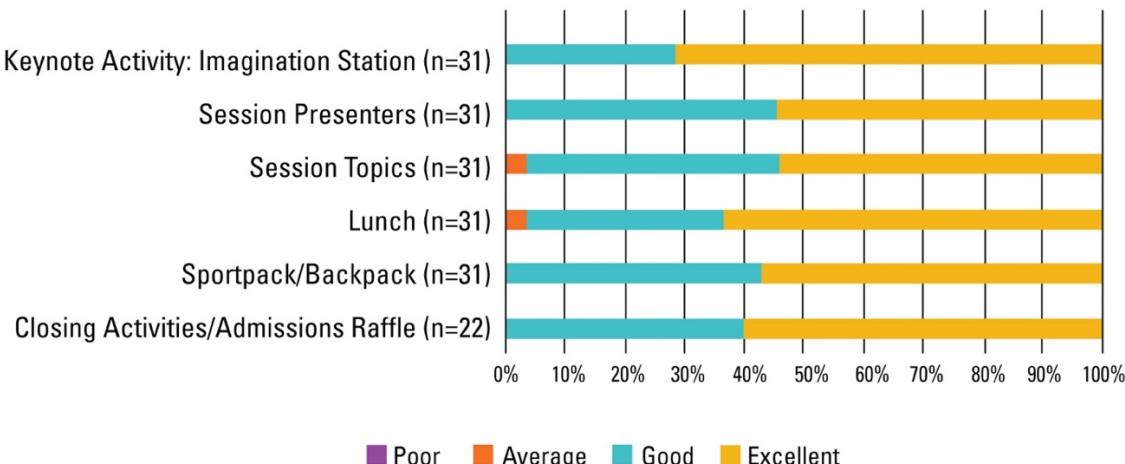
Students' Interest in STEM Topics



From the Chaperones' Perspective

A total of 31 chaperones completed the overall evaluation survey after the event, for a total response rate of 98%. Chaperones' perspective of the different aspects of the Women in STEM program are displayed below; overall, they felt positively about this year's event and the many aspects that go into implementing a positive and impactful experience for attendees.

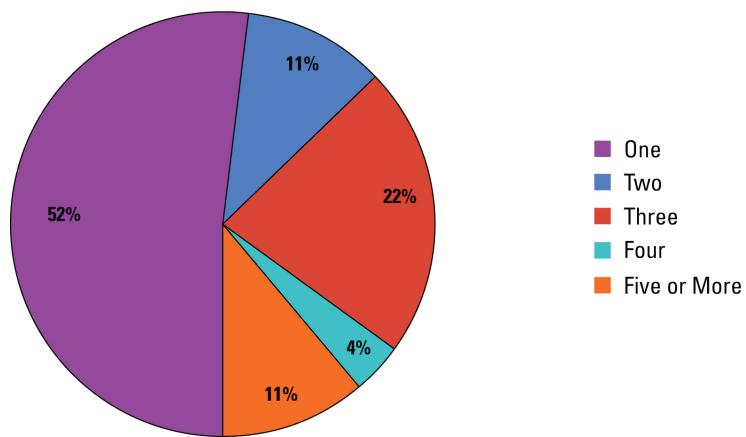
Chaperone Perceptions of Women in STEM 2018



From the Presenters' Perspective

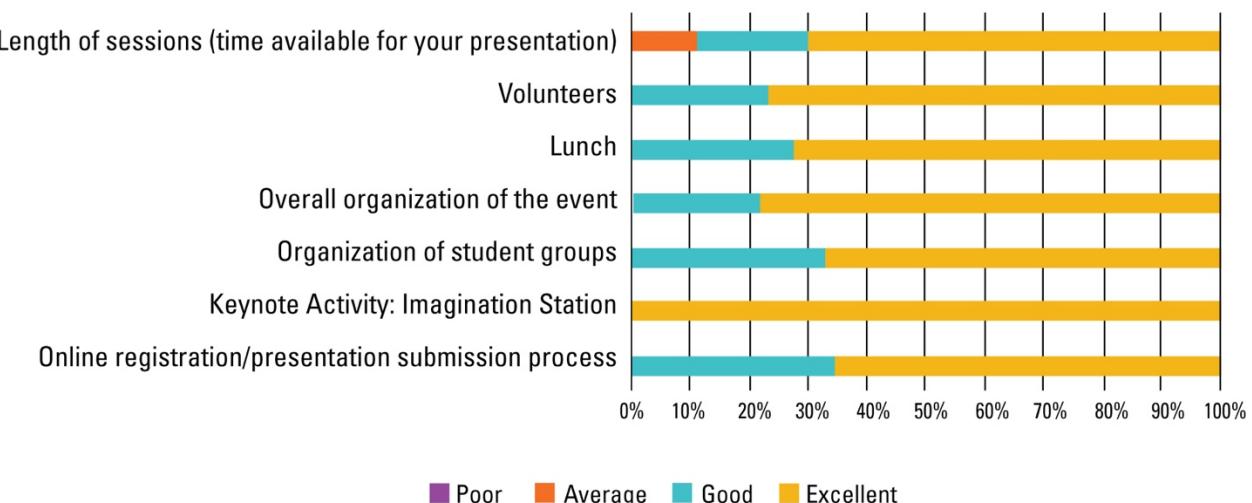
Twenty-seven presenters completed the online evaluation. Over half (63%) of the respondents indicated that this was their first or second year participating in Women in STEM, indicating that staff recruitment efforts to include new presenters appears to be working well.

How many years (countng this one) have you been involved with Women in STEM? (n=27)



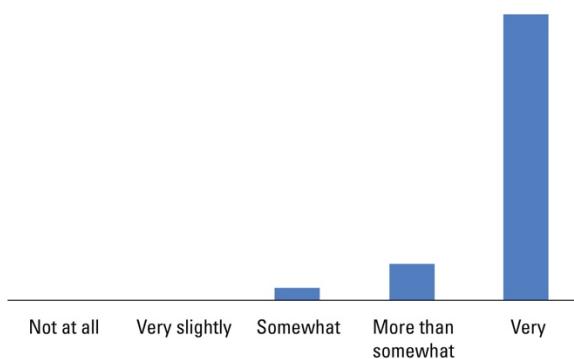
Presenters were also asked to rate several aspects of the Women in STEM program. Their responses are detailed below. The majority of respondents noted that they did not take part in the keynote activity, which accounts for the low response rate in this category on the chart below. Overall, the presenters responded very positively about the event overall with the majority rating each category as “excellent” or “good”.

Presenter Perceptions of Women in STEM 2018 (n=27)

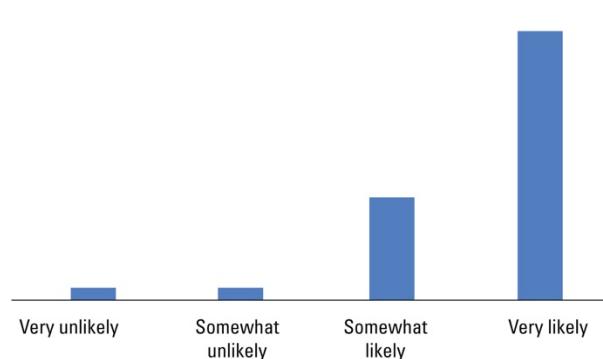


Additionally, presenters were asked to rate the extent to which their participation was worthwhile. All presenters reported their participation to be “more than somewhat” or “very” worthwhile and 93% indicated that they were “somewhat likely” or “very likely” to participate in future Women in STEM events. Their reasoning mostly revolved around the importance of engaging the students in STEM; serving as potential role models for the girls, the organization of the event, and the fact that the students in their sessions seemed interested in what was being presented. The charts below display the overall responses from the presenters regarding their participation this year and in the future.

As a presenter at Women in STEM, how worthwhile was your participation? (n=27)



How likely is it that you will participate in Women in STEM next year? (n=27)



Impact of the Event

The presenters who completed the overall evaluation survey believed the event was most successful in exposing students to STEM topics and careers of which the students may not have otherwise been aware. Some of the survey respondents wrote:

- *I liked being a helping hand in teaching these young women about field positions that are more often filled by men.*
- *One of the best days of my year. I thoroughly enjoy working with the girls and supporting this event. I did not get to attend the Keynote this year but the girls I asked seemed to be wowed by the presentation. I preferred when the girls completed the surveys at the end of the session while it was still fresh in their minds.*
- *It's fun seeing the young women immerse themselves with unfamiliar subject matter in a hands-on setting.*

- *I love being part of this event and am happy BGSU continues to provide this worthwhile experience to young ladies.*
- *I truly enjoyed being a part of Women in STEM 2018. The event was well organized and ran smoothly from what we could tell. The girls and teachers in attendance were all excited to be there and ready to be engaged and learn!*
- *I enjoy the event but wish that I had longer than 45 minutes to complete our STEM project.*

Recommendations

The following recommendations are made based on the feedback from the evaluation surveys and input from project staff:

- **Continue with the combined paper overall and session evaluation survey at the end of the day.** While not all students completed each section of the evaluation, there was a good response rate with this method of evaluating the program. Many presenters appreciated not having to take the time at the end of their session to give out evaluations but still appreciate the feedback from their presentation. The combined evaluation sheet allows for feedback on the sessions without taking time from presenters.
- **Allow schools to select their top picks for session themes.** Several chaperones and students commented that they would like to select in advance which sessions to attend. While it is not entirely feasible for schools to select the exact sessions they attend, it would be worth considering adding a section to the registration to allow schools to order the session themes by interest for their group (i.e. first, second, third, fourth choice, etc.).
- **Provide more information on presenters as a group.** Several presenters mentioned they would like to know more about the program as a whole and the other STEM fields represented as well as titles of other presentations.
- **Allow additional time in between presentations.** As some presentations are held in other locations on campus, more time should be allowed to travel from one place to another. As well, having a mini-tour of campus was appreciated and suggested for the future.

We Hope You Enjoyed the 2018 Women in STEM Event at BGSU!

Members of the Women in STEM committee are always seeking ways to improve future events. The best way to do this is to find out what participants think of the event, and use their comments and suggestions to make future events better.

Please take a few minutes to complete the following evaluation survey and tell us what you thought about the 2018 Women in STEM event. We appreciate your cooperation!

Thank you for your assistance in improving Women in STEM.

How many years (counting this one) have you been involved with Women in STEM?

This is my first year

Two

Three

Four

Five or more

Appendix A

Please rate the following aspects of Women in STEM 2018.

	Poor	Average	Good	Excellent	This doesn't apply to me
Online registration/presentation submission process	<input type="radio"/>				
Keynote Activity: Imagination Station	<input type="radio"/>				
Organization of student groups	<input type="radio"/>				
Overall organization of the event	<input type="radio"/>				
Lunch	<input type="radio"/>				
Volunteers	<input type="radio"/>				
Length of sessions (time available for your presentation)	<input type="radio"/>				

As a presenter at Women in STEM, how worthwhile was your participation?

Not at all

Very slightly

Somewhat

More than somewhat

Very

Appendix A

As a Presenter, what is your perception of the impact of Women in STEM on students' interest in and understanding of STEM (science, technology, engineering, and mathematics)?

How likely is it that you will participate in Women in STEM next year?

Very unlikely

Somewhat unlikely

Somewhat likely

Very likely

Please describe your experience at Women in STEM 2018 in your own words. You can include the parts that you liked as well as those that you didn't like.

What suggestions do you have for next year's event? Is there anything that you would want to see kept or removed? Is there anything you would change or add?

THANK YOU VERY MUCH FOR YOUR COOPERATION!

Appendix B

Women in STEM 2018 Overall Evaluation

Thank you for attending the 2018 Women in STEM at BGSU! We are glad you were part of this event!

Please take a few minutes to answer the following questions and tell us what you thought about the event.

We appreciate your cooperation! Thank you for your assistance in improving Women in STEM.

School:

Grade: _____

Please answer the questions below for each session you attended. Read each statement carefully. Then, select the one choice that best matches your opinion of the statement. There are no right or wrong answers. We only want to know your opinion.

Session 1: 9:55 AM – 10:40 AM:

	No, Not at All	No, Not Really	Yes, Kind of	Yes, For Sure
We learned about this session's topic in a fun and engaging way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The presenter was good at explaining the topic and answering questions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The presenter was enthusiastic about the topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending this session was worth my time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This session engaged me in a hands-on activity related to the presented topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This session made science, technology, engineering and/or math seem interesting and important.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Session 2: 10:50 AM – 11:35 AM:

	No, Not at All	No, Not Really	Yes, Kind of	Yes, For Sure
We learned about this session's topic in a fun and engaging way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The presenter was good at explaining the topic and answering questions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The presenter was enthusiastic about the topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending this session was worth my time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This session engaged me in a hands-on activity related to the presented topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This session made science, technology, engineering and/or math seem interesting and important.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Session 4: 12:40 PM – 1:25 PM:

	No, Not at All	No, Not Really	Yes, Kind of	Yes, For Sure
We learned about this session's topic in a fun and engaging way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The presenter was good at explaining the topic and answering questions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The presenter was enthusiastic about the topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending this session was worth my time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This session engaged me in a hands-on activity related to the presented topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This session made science, technology, engineering and/or math seem interesting and important.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Women in STEM 2018 Overall Evaluation

Thank you for attending the 2018 Women in STEM at BGSU! We are glad you were part of this event!

Please take a few minutes to answer the following questions and tell us what you thought about the event.

We appreciate your cooperation! Thank you for your assistance in improving Women in STEM.

1) Please rate the following aspects of Women in STEM 2018.

	Poor	Average	Good	Excellent
Keynote Activity: Imagination Station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Session Presenters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Session Topics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lunch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sportpack/Backpack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closing Activities/Admissions Raffle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2) How interested in STEM (science, technology, engineering, and mathematics) topics were you before and after attending Women in STEM? Choose the options below that describe you best.

	Not At All Interested	A Little Interested	Pretty Interested	Very Interested
Before Women in STEM, I was:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After Women in STEM, I am:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3) How interested were you in having a career in STEM before and after attending Women in STEM? Choose the options below that describe you best.

	Not At All Interested	A Little Interested	Pretty Interested	Very Interested
Before Women in STEM, I was:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After Women in STEM, I am:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4) Please use the space below to describe your experience at Women in STEM in your own words. You can include the parts that you liked as well as those that you didn't like.

5) Which of the following best describes the way you define your racial/ethnic background? Please only select ONE.

White, non-Hispanic Black, non-Hispanic Hispanic Asian/Pacific Islander

Middle Eastern American Indian/Native Alaskan Multiracial

Women in STEM 2018 Overall Evaluation

Thank you for attending the 2018 Women in STEM at BGSU! We are glad you were part of this event!

Please take a few minutes to answer the following questions and tell us what you thought about the event.

We appreciate your cooperation! Thank you for your assistance in improving Women in STEM.

School: _____

Chaperone Status: Select one of the following.

Teacher: Parent/Guardian: School Administrator: Other: _____

1) Please rate the following aspects of Women in STEM.

	Poor	Average	Good	Excellent
Keynote Activity: Imagination Station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Session Presenters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Session Topics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lunch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sportpack/Backpack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closing Activities/Admissions Raffle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2) Please use the space below to describe your experience at Women in STEM in your own words. You can include the parts that you liked as well as those that you didn't like.

3) As a chaperone, what is your perception of the impact of Women in STEM on students' interest in and understanding of STEM (science, technology, engineering, and mathematics)?