



2016 Evaluation Report

May 2016



INTRODUCTION

The Ohio Junior Science and Humanities Symposium (hereafter referred to as OJSHS) is an annual event in which Ohio students in grades 7 to 12 “compete for scholarships and recognition by presenting the results of their original research efforts before a panel of judges and an audience of their peers”¹. The OJSHS is part of the national Junior Science and Humanities Symposia Program, which is jointly sponsored by the United States Departments of the Army, Navy, and Air Force, in cooperation with leading research universities throughout the nation.

The 53rd annual OJSHS took place on March 16 – 18, 2016 at Bowling Green State University, who hosted and sponsored the event along with the NWO Center for Excellence in STEM Education. The purpose of this report is to present the findings of the 2016 OJSHS evaluation. The report begins with a description of evaluation methods, followed by a description of the 2016 OJSHS participants. The report then summarizes the perceptions of the 2016 OJSHS participants before concluding with recommendations for future Ohio Junior Science and Humanities Symposia.

¹ Cited from the national Junior Science and Humanities website – www.jshs.org

EVALUATION METHODS

The 2016 OJSHS was evaluated using an online survey that was made available to the participants at the end of the last day of the event. The link to the survey was included in the program distributed to all participants. The link was also e-mailed to the participants on the last day of the event and a reminder email sent one week later.

The evaluation survey included several items that asked participants to rate the quality of several aspects of the 2016 OJSHS, including the keynote presentation, the poster and paper judges, the organization of poster presentation space, and the awards ceremony. The survey also asked participating students to rate how effective the OJSHS was at increasing their interest in STEM research and careers. The survey included several closed-ended multiple-choice items (fifteen for students and nine for non-students) and several open-ended items (three for students and four for non-students) that asked participants to write about their perceptions of the 2016 OJSHS and give suggestions regarding how it could be improved.

See Appendix A for the 2016 OJSHS Evaluation Survey.

2016 OJSHS PARTICIPANTS

A total of 115 students and 96 non-students participated in the 2016 OJSHS. Students could participate in the OJSHS as paper presenters, poster presenters, or delegates (who did not present any research). Non-students included teachers, parents, paper and poster judges, OJSHS staff/volunteers (e.g., session presiders), and other guests. The attendance numbers are displayed in the table below.

Participant	2016 Attendance	2015 Attendance	2014 Attendance	2013 Attendance	2012 Attendance
Student Presenting a Paper	24	24	24	24	25
Student Presenting a Poster	83	64	71	53	75
Student Delegate	8	4	6	7	5
Parent of a Participating Student	22	23	22	16	20
Teacher of a Participating Student	13	12	13	11	10
Paper Judge	5	6	6	6	6
Poster Judge	36	26	26	19	21
OJSHS Staff and Volunteers	12	13	13	25	30
Other Guests	8	3	14	8	4
Total	211	175	195	169	196

Attendance has remained mostly constant over the past five years, with the major variable being the number of students presenting a poster.

Demographic information was collected from the participating students via the 2016 OJSHS registration and evaluation. Most of the students were participating in the OJSHS for the first time in 2015, and a majority of the students were female and White. The student demographic information is displayed in the table below.

Demographic Variable	Values	N	%
Number of years (including 2016) participating in the OJSHS (n=32)	One	24	75.0%
	Two	2	6.3%
	Three	3	9.4%
	Four	2	6.3%
	Five	0	0.0%
	Six	1	3.0%
Gender (n=115)	Female	70	61%
	Male	45	39%
Racial/Ethnic Background (n=115)	Asian	12	10%
	Black or African American	1	1%
	Hispanic or Latino	3	3%
	Multiracial	2	2%
	White or Caucasian	89	77%
	Other – Not Specified	2	2%
	Chose Not to Report	6	5%

Note: Not all students completed each demographic item. The number in parentheses indicates the total number of responses for that particular item.

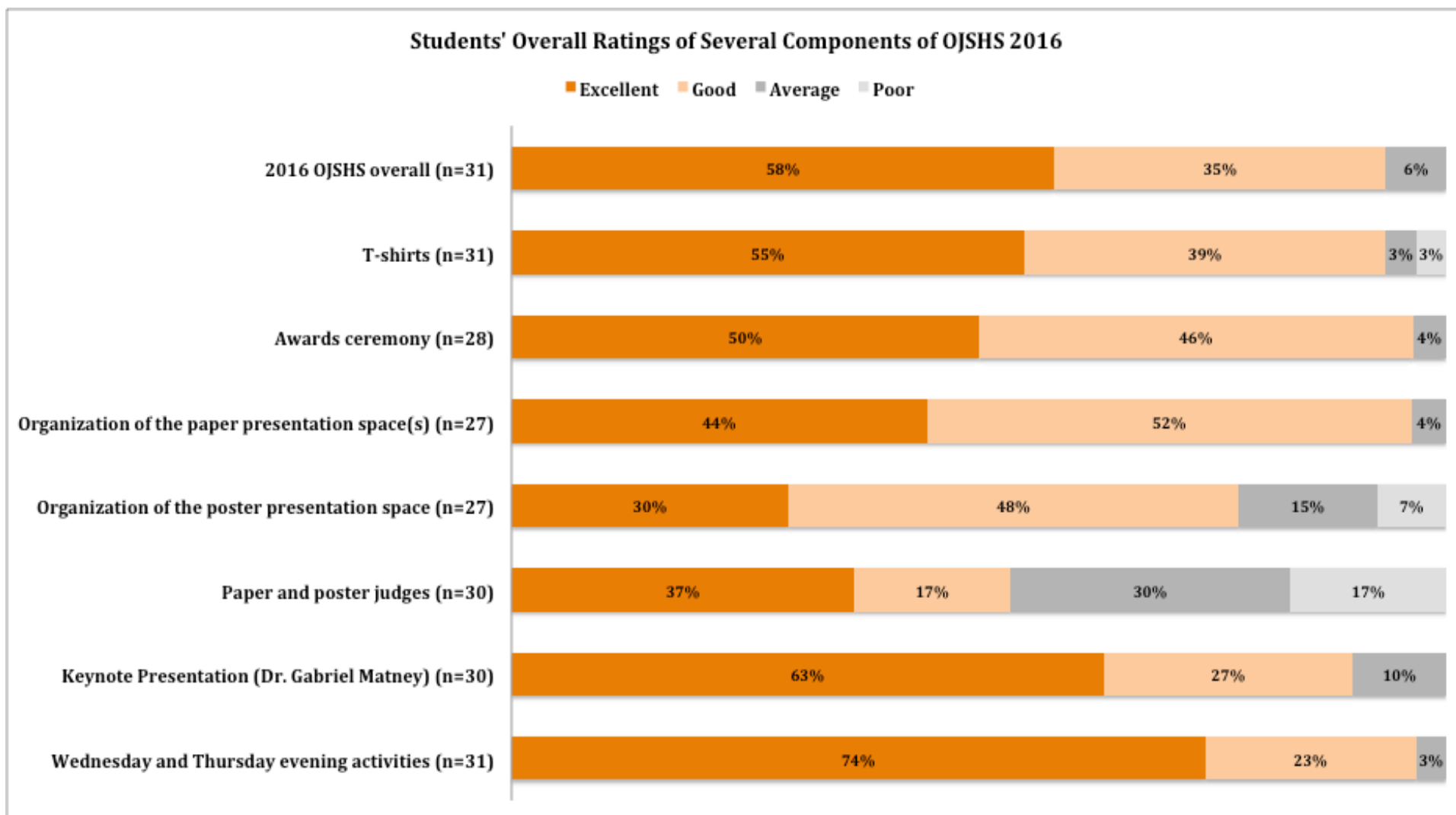
PERCEPTIONS OF THE 2016 OJSHS

Student Perceptions

A total of 37 students completed the evaluation survey. The overall response rate to the evaluation survey was 32%. This is much lower than previous years, which ranged between 45-55% response rate. The lower response rate might be due to the addition of the national JSHS survey this year.

The students were asked to rate the quality of several components of the 2016 OJSHS. The 2016 OJSHS included several daytime and evening events throughout its three-day duration. However, some of the participating students only attended the second day of the OJSHS, which was the day on which the students presented their papers and posters. For this reason, a “this does not apply to me” option was included on the evaluation survey. Therefore, the number of responses (n) for each item reflects only those students who actually participated in or interacted with the OJSHS component in question. The figure on the next page illustrates the distribution of the students’ responses.

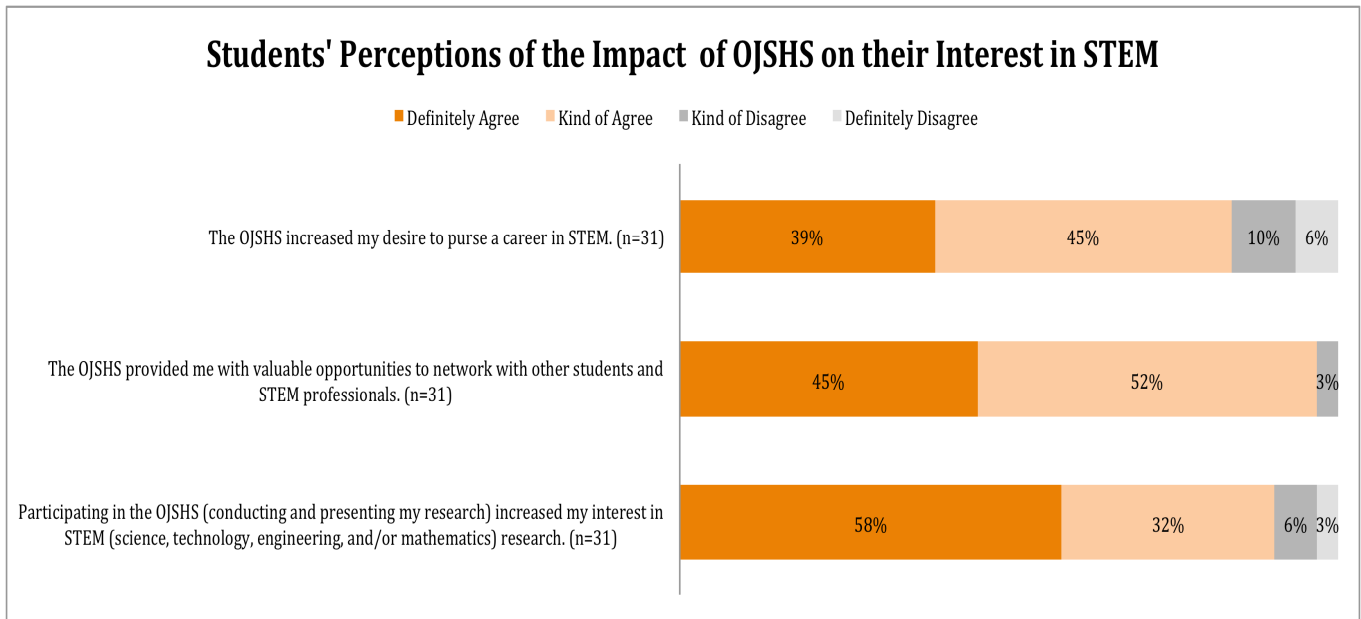
Students' overall ratings of the 2016 OJSHS were positive



Students were asked to write comments to explain their responses to the previous questions. The majority of the students' comments were positive, indicating that the students had a positive experience at the 2016 OJSHS. However, some students made constructively critical comments about the judging, feeling specifically that some judges were evaluating presentations that were out of their field. Some of the students wrote:

- *Overall it was all very good. However, more specifically engineering-oriented judges are very important.*
- *There needs to be at least 1 engineer judging paper presentations. Some of the more engineering based projects seemed to be overlooked or misunderstood by the judges. Also, some engineers are needed for judging poster presenters.*
- *I hope there will be separate judges for biology and engineering projects (in the future). Some of the judges who did not have expertise in other subjects asked irrelevant questions.*

In addition to rating the quality of the 2016 OJSHS, students were also asked to rate the *impact* of the 2016 OJSHS on their interest in STEM (science, technology, engineering, and mathematics) research careers. The figure below illustrates the distribution of responses for each item.



The students were asked to describe their experience at the 2015 OJSHS in their own words. One of the main themes that emerged from the students' responses was the opportunity for student-student interaction. Many students wrote about meeting new people at the 2015 OJSHS. Some of the students wrote:

- *I loved learning about everyone's research*
- *I enjoyed hearing all of the paper presenters and what they are doing, along with seeing some of the posters. It was a good opportunity to meet new people and hear different ideas for similar problems.*
- *I enjoyed meeting new people and hearing other's research.*

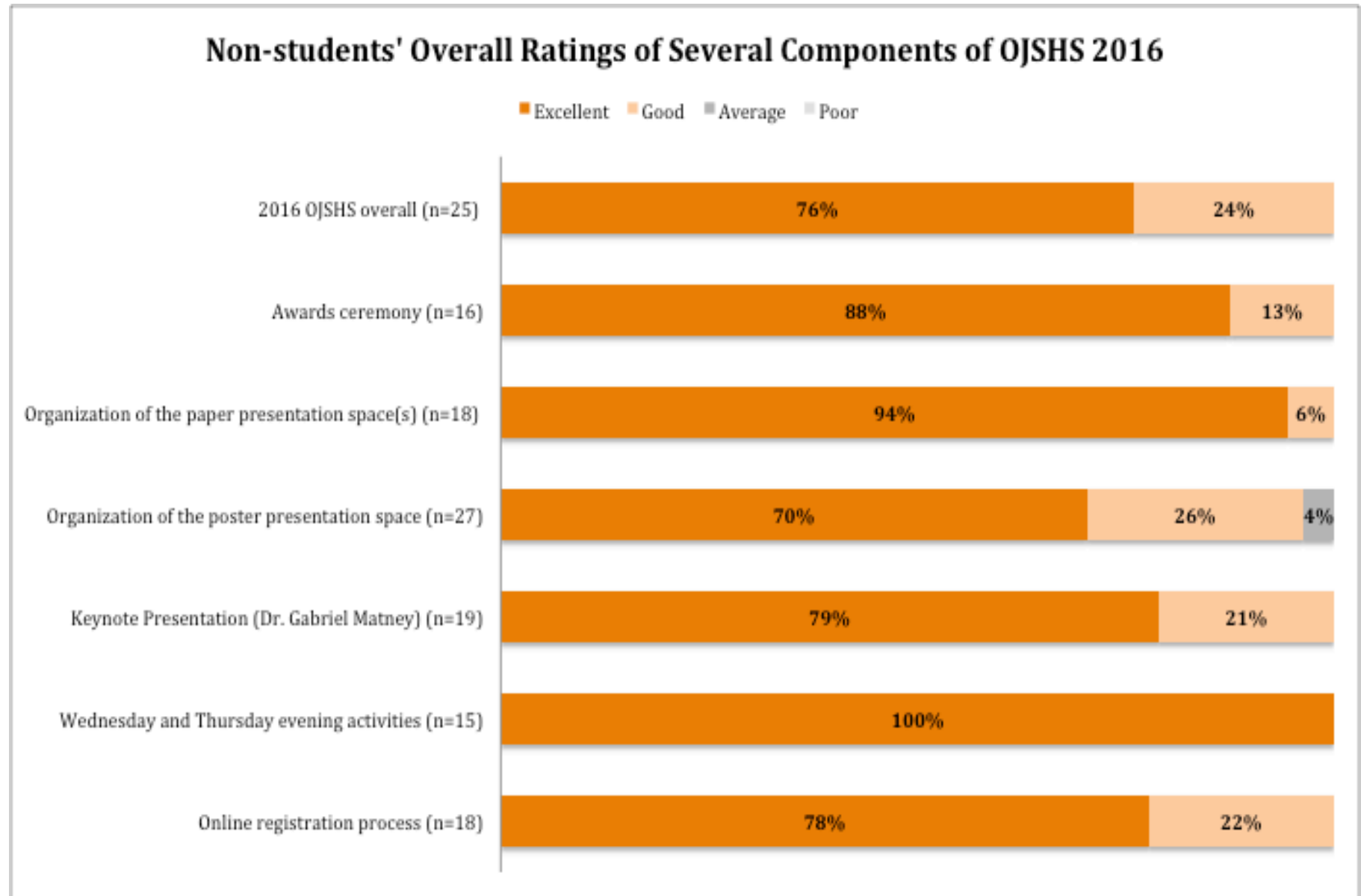
Finally, 56% of students who are eligible to return next year (i.e., not 12th graders) reported that it would be very or moderately likely that they will be involved with the OJSHS next year.

Non-Student Perceptions

A total of 33 non-students completed the evaluation survey. The overall response rate to the evaluation survey was 34%, which is on par with the response rate from previous years.

Like the students, the non-student participants were asked to rate several components of the 2016 OJSHS. Some of the non-student participants (e.g., poster and paper judges) only participated in the second day of the 2015 OJSHS. Therefore, the responses to "online registration process," "Wednesday and Thursday evening activities," "keynote presentation," and "awards ceremony" mostly represent teachers and parents of participating students. The figure on the next page illustrates the non-students' distribution of responses for each item.

Non-students' overall ratings of the 2016 OJSHS were positive



In addition to rating the quality of the 2016 OJSHS, the non-student participants were also asked to describe the impact of the 2016 OJSHS on students' interest in and understanding of STEM. Although it is likely that most of the participating students were already interested in STEM, many non-student participants suggested that the OJSHS provided students with motivation to continue learning and conducting research about STEM. Some of the participants wrote:

- *I think it gives them something to look forward to, a reason to stay interested in STEM disciplines.*
- *This symposium was a wonderful experience for my daughter. It has inspired her to continue pursuing knowledge in the sciences.*
- *I think that this opportunity has raised student interest in STEM and the processes related to scientific research.*
- *I was greatly impressed with all the students' knowledge and interest in STEM related research. OJSHS allowed them to research and think deeply about concepts that are beyond the scope of normal state standards. Such a venue is dreadfully needed.*
- *I think that the projects that students work on and submit to the OJSHS greatly increases their interest and understanding of STEM. I believe that their attendance at the symposium also increases their interest in those areas.*
- *All aspects of the OJSHS program had a huge impact on the students. It was impressive to see the students, eager, engaged and passionate about STEM!*
- *I think this program further enhances their desire to learn and grow within the STEM field.*
- *OJSHS is always a highlight of the students' years. It excites them and drives them to do more research and come back in future years.*
- *It increases by magnitudes their understanding of the processes of science as well as their own sense of efficacy and potential to utilize science to make the world a better place.*

The non-student participants' comments about their experience at the OJSHS were positive. Many specifically commented about the high level of organization, and others echoed the comments of the students, emphasizing the role of OJSHS in fostering positive student-student interactions. All of the non-student participants who completed the survey reported that is moderately or very likely that they will be involved with the OJSHS next year.

SUGGESTIONS FOR FUTURE OJSHS

The findings from the 2016 OJSHS evaluation survey indicate that the 2016 OJSHS was perceived to be a high-quality and impactful event by student and non-student participants alike. The findings demonstrate that the 2016 OJSHS provided many opportunities for students to interact with and learn from other students and STEM professionals, and helped stimulate more interest in students to learn about and conduct STEM research.

The following suggestions should be considered in the planning of future events:

- Some students and non-students suggested that the poster session being so close to the paper session created several challenges. A suggestion for 2017 might be to move the paper and poster sessions into two distinctly different rooms, instead of one separated by a moveable wall.
- As in the past, students and some non-students suggested that poster judges be assigned only to posters within their field.
- Several students and non-students expressed the desire for more paper judges from different areas, especially the engineering field.
- The most commonly suggested topic for next year's keynote was biology.

APPENDIX A:
THE 2016 OJSHS EVALUATION SURVEY

OJSHS Evaluation Survey

We Hope You Enjoyed the 2016 Ohio Junior Science and Humanities Symposium!

Members of the Ohio Junior Science and Humanities Symposium Program Evaluation Committee are always seeking ways to improve future Symposia. The best way to do this is to find out what participants think of the Symposium, and use their comments and suggestions to make future Symposia better.

Please take a few minutes to complete the following evaluation survey and tell us what you thought about the 2016 Ohio Junior Science and Humanities Symposium. We appreciate your cooperation!

Thank you for your assistance in improving the Ohio JSHS.

Which of the following describes you and your participation at OJSHS?

- Student - presented a paper
- Student - presented a poster
- Student delegate - did not present a paper or poster
- Parent of a participating student
- Teacher of a participating student
- Paper judge
- Poster judge
- OJSHS staff member/volunteer
- Other (please specify)

OJSHS Evaluation Survey

Students, Tell Us What You Think!

How many years (counting this one) have you participated in the OJSHS?

- One (this is my first year)
- Two
- Three
- Four
- Five
- Six

What is your gender?

- Female
- Male

Which of following best describes the way you define your racial/ethnic background?

- American Indian or Alaskan Native
- Asian
- Black or African American
- Hispanic
- Middle Eastern
- Native Hawaiian or Other Pacific Islander
- White, non Hispanic

Please rate the following aspects of the 2016 OJSHS.

	Poor	Average	Good	Excellent	This doesn't apply to me
Wednesday and Thursday evening activities (e.g., ice skating, banquet)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keynote Presentation (Dr. Gabriel Matney)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paper and poster judges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization of the poster presentation space	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization of the paper presentation space(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Awards ceremony	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
T-shirts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 OJSHS overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide some comments to further explain your above ratings.

What topic or field (e.g., physics, computer science, biology) would you like to hear about during next year's keynote address?

Please rate your level of agreement/disagreement with the following statements.

Participating in the OJSHS (conducting and presenting my research) increased my interest in STEM (science, technology, engineering, and/or mathematics) research.

	Definitely Disagree	Kind of Disagree	Kind of Agree	Definitely Agree
Please select your choice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The OJSHS provided me with valuable opportunities to network with other students and STEM professionals.

	Definitely Disagree	Kind of Disagree	Kind of Agree	Definitely Agree
Please select your choice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The OJSHS increased my desire to pursue a career in STEM.

Definitely Disagree

Kind of Disagree

Kind of Agree

Definitely Agree

Please select your
choice.

OJSHS Evaluation Survey

Please Tell Us What You Think

How many years (counting this one) have you been involved with the OJSHS?

- One (this is my first year)
- Two
- Three
- Four
- Five
- Six or more

Please rate the following aspects of the 2016 OJSHS.

	Poor	Average	Good	Excellent	This doesn't apply to me
Online registration process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wednesday and Thursday evening activities (e.g., ice skating, banquet)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keynote presentation (Dr. Gabriel Matney)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization of the poster presentation space	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization of the paper presentation space(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Awards ceremony	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2016 OJSHS overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide some comments to further explain your above ratings.

What suggestions do you have regarding a theme for next year's Symposium?

As a [Q1], what is your perception of the 2016 OJSHS's impact on students' interest in and understanding of STEM (science, technology, engineering, and mathematics)?

OJSHS Evaluation Survey

We Want to Know About Your 2016 OJSHS Experience

Please describe your experience at the 2016 OJSHS in your own words. Include the the aspects of your experience that you liked as well as those that you didn't like.

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

**How likely is it that you will participate in/be involved with the OJSHS next year?
Students in the 12th grade, please select "This does not apply to me".**

- Not at all likely
- Very slightly likely
- Moderately likely
- Very likely
- This does not apply to me

THANK YOU VERY MUCH FOR YOUR COOPERATION!