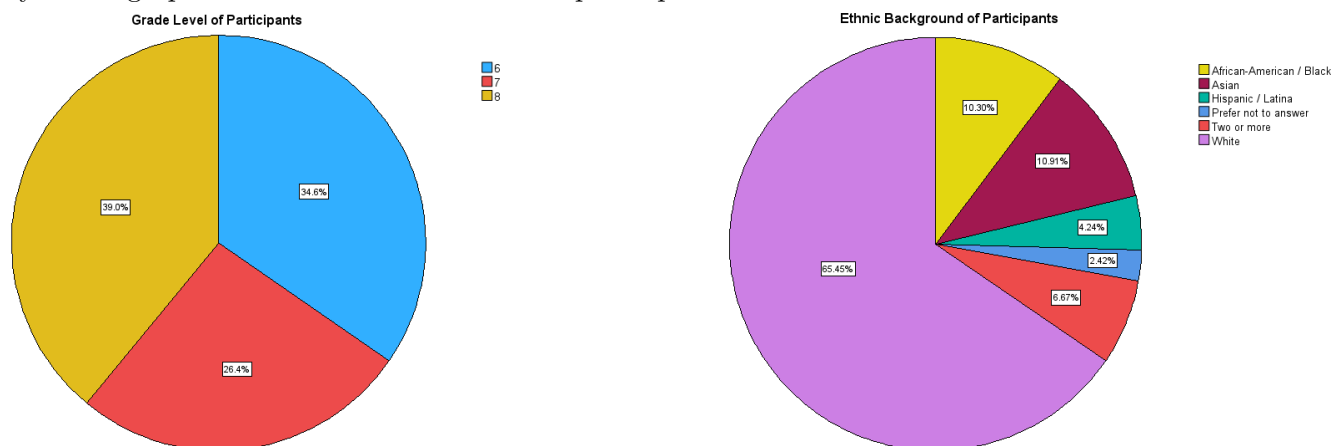


# Evaluation Highlights for the 2024 madiSTEM Conference at James Madison University

## Demographics:

Of the 214 student participants at the 2024 madiSTEM Conference, 167 participants completed the conference pre-survey. Demographic data is based on these 167 participants.



- **43.71%** of student participants reported that they **participate in science, math, or computer activities (other than madiSTEM) outside of school** with 5.99% of student participants reporting that they participate in all three types of activities. 44.31% of the student participants reported they are not currently involved in science activities, but they are interested in doing so. 31.74% of the student participants reported they are not currently involved in math activities, but they are interested in doing so. 32.34% of the student participants reported they are not currently involved in computer activities, but they are interested in doing so.

## Feedback on the Conference Experience:

Post-surveys were completed by 196 student participants and 42 adult participants at the end of the conference.

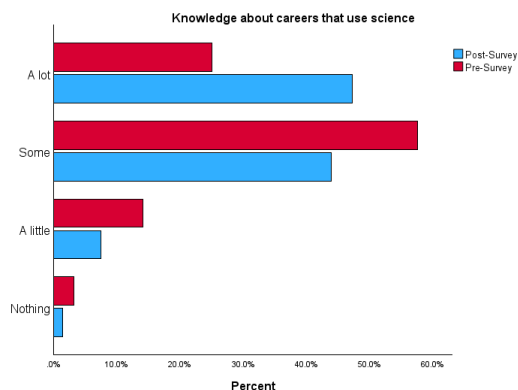
- **95.8%** of student participants and **100%** of adult participants reported that they **loved or liked the overall experience**.

## Selected Comments from Adults on the Post-Survey and One-Month Follow-up Survey:

- *“The students got hands-on experiences. The student panels were very informative and useful.”*
- *“Exposing my daughters to careers and ways of thinking they may not have conceived of before.”*
- *“I enjoyed the keynotes the most. Hearing real, successful women share their journeys, struggles, and celebrations made goals tangible for the girls in the audience.”*
- *“All of the volunteers were wonderful. Thank you for putting on an event that has such an impact. My daughter said that she would like to be a part of this event in the future as a volunteer.”*
- *“That there is a concerted and sincere effort to get girls interested in STEM related interests and job fields.”*
- *“The morning keynote speaker was very informative. My daughter really enjoyed her workshops.”*
- *“Seems more comfortable/confident. She has always liked math but seems to enjoy science subjects more after MadiSTEM”*

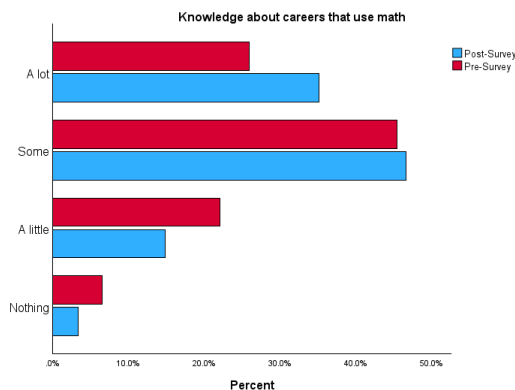
## Changes in Knowledge about STEM Careers:

On both the pre- and post-surveys, student participants were asked to rate their knowledge about careers that use each of the following areas: science, math, computers/technology, and engineering. All of the percentages below are based on the student participants who answered these questions on both surveys.



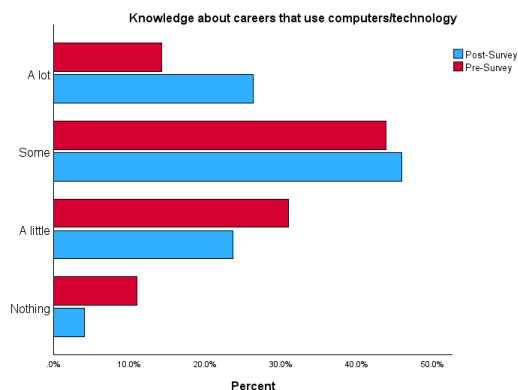
After attending madiSTEM, **38.1% of the student participants** reported a **higher level of knowledge about careers using science.**

50.91% of the participants who reported a level of knowledge below “A lot” on the pre-survey reported a higher level of knowledge on the post survey.



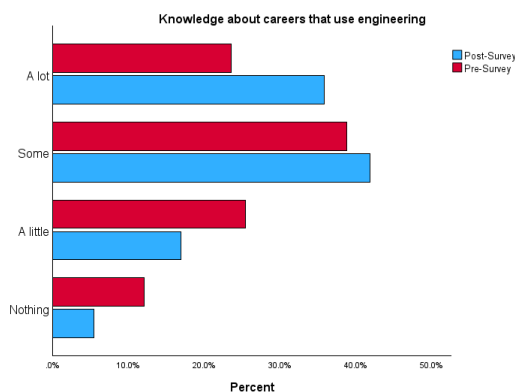
After attending madiSTEM, **33.79% of the student participants** reported a **higher level of knowledge about careers using math.**

45.37% of the participants who reported a level of knowledge below “A lot” on the pre-survey reported a higher level of knowledge on the post survey.



After attending madiSTEM, **43.15% of the student participants** reported a **higher level of knowledge about careers using computers/technology.**

50.0% of the participants who reported a level of knowledge below “A lot” on the pre-survey reported a higher level of knowledge on the post survey.



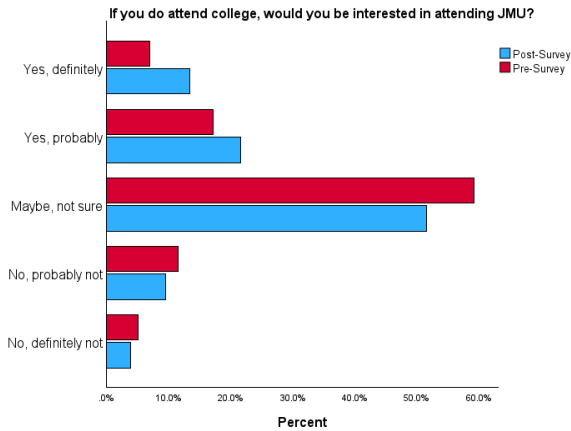
After attending madiSTEM, **38.1% of the student participants** reported a **higher level of knowledge about careers using engineering.**

49.12% of the participants who reported a level of knowledge below “A lot” on the pre-survey reported a higher level of knowledge on the post survey.

## Changes in Interests and Perceptions:

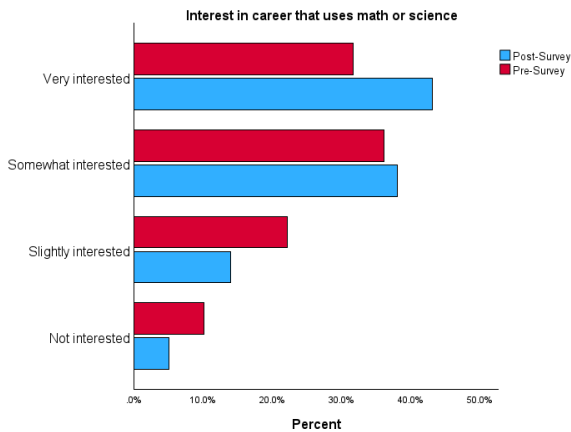
On both the pre- and post-surveys, student participants were asked to rate their interest in attending James Madison University, their interest in a career that uses math or science, their confidence in their future success in a career that uses math or science, and their interest in learning more about each of a list of topics (science, math, computers/technology, and engineering). All of the percentages below are based on the student participants who answered these questions on both surveys.

### Interest in Attending JMU:

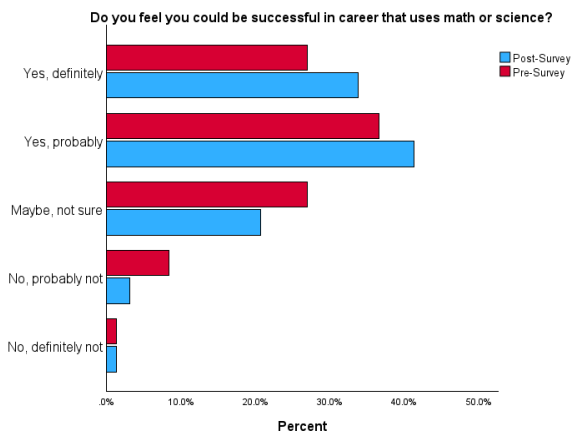


21.23% of the participants who reported a level of interest below “Yes, definitely” on the pre-survey reported a higher level of interest on the post-survey.

### Interest and Confidence in STEM Career:

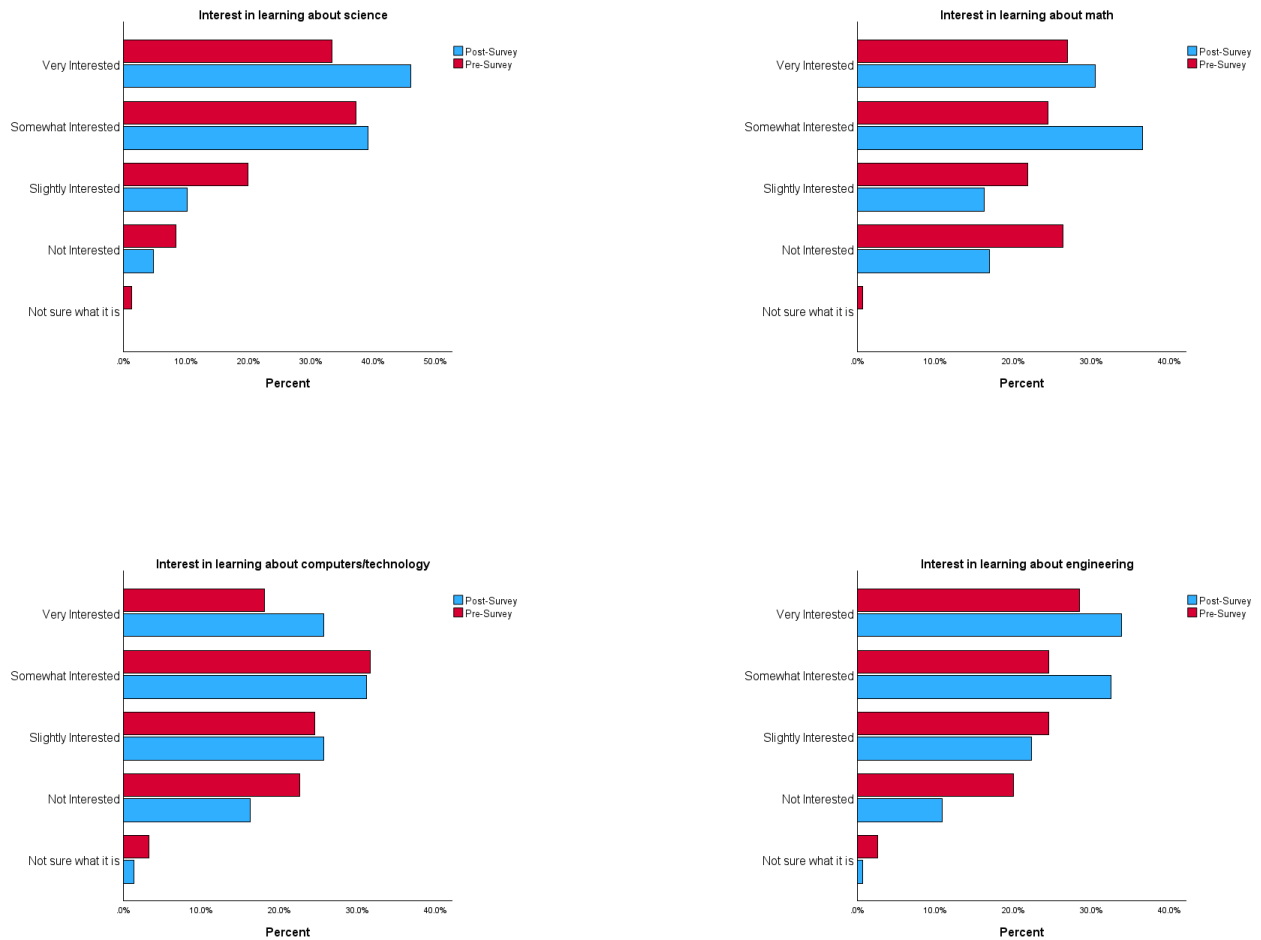


43.52% of the participants who reported a level of interest below “Very interested” on the pre-survey reported a higher level of interest on the post-survey.



38.39% of the participants who reported a level of interest below “Yes, definitely” on the pre-survey reported a higher level of confidence on the post-survey.

## Interest in Learning More about STEM Topics:



- 67.19% of the participants who reported a level of interest below “Very interested” in all of these areas reported a higher level of interest in **at least one** of these areas.

## Selected Comments from Students on the Post-Survey about How Participating in madiSTEM Changed Their Thinking About Their Career Plans:

- *“It made me think about what jobs and how women in different jobs can do what they dream of and follow their dreams. Also it made me think of how many jobs there is for women.”*
- *“Things that look complicated can actually be easy. That inspired me to try and pursue more difficult jobs.”*
- *“I feel better about having a STEM job realistically.”*
- *“I like programming and the technology ones gave me an idea of what I want to be something in that field.”*
- *“I kind of got more of an idea of what I might do if I wanted to pursue a career that had to do with STEM and math”*
- *“It made me a bit more confident in a career that includes math and science”*
- *“They made me think that not everything is just what people say, but theres always a fun way”*
- *“IDK chat. It made me sure that I don’t wanna do computer science. The opening speech inspired me.”*

**Follow-up Actions and Changes in Perceptions and Interest One Month after madiSTEM:** Adults who registered student participants for madiSTEM received an online survey invitation approximately one month after the conference. 49 parents and guardians responded and provided information about 54 student participants.

Since attending madiSTEM,

- **97.8%** of these students had **talked with their parent/guardian about what they had learned at madiSTEM,**
- **74.5%** of these students had **expressed increased interest in a career that uses math or science,**
- **74.5%** of these students had **expressed increased confidence with regard to their potential for success in a career in math or science,** and
- **62.3%** of these students had **expressed interest in taking additional math or science classes in the future.**

In addition, parents reported the degree to which their children had recently done any research to learn more about STEM topics or careers.

- **51.1%** of these students researched topics/careers in **science;**
- **34.7%** of these students researched topics/careers in **mathematics;**
- **32.6%** of these students researched topics/careers in **computers or technology;** and
- **32.6%** of these students researched topics/careers in **engineering.**

#### **Selected Comments from Adults on the One-Month Follow-up Survey:**

Parents and teachers reported any changes in student perceptions or interests in math or science since attending madiSTEM.

- *“Charlotte has always been interested in science and math, but after last year’s madiSTEM she started talking a lot more about the environment and sustainability, I think now that is something she is even more interested in”*
- *“Data analysis of real world problems are our current conversations. Also, how to combine science. And engineering with art to solve problems.”*
- *“She has an increased desire to complete hands-on STEM projects at home.”*
- *“It’s been more of an interest in college. AND JMU is exciting to her.”*
- *“It gave her an idea of what options are available in the stem field for girls”*

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#### **About the Conference:**

The madiSTEM Conference at James Madison University is an annual STEM (science, technology, engineering, and mathematics) conference designed for young women in grades 6-8. The 2024 madiSTEM conference involved 214 student participants in grades 6-8, approximately 145 JMU student volunteers, and 9 adult volunteers. Each year, the conference program includes two keynote addresses, around 20 hands-on student workshops on a wide variety of STEM topics, and lunch with JMU students from STEM majors. The purpose of madiSTEM is to foster and support young women’s interest in STEM fields, to increase their awareness of STEM career opportunities, and to empower them to see themselves as future participants in these fields and careers.

More information about the 2024 madiSTEM Conference at James Madison University can be obtained by visiting the conference’s website (<https://www.jmu.edu/mathstat/madistem/index.shtml>) or emailing the conference directors at [madistem@jmu.edu](mailto:madistem@jmu.edu). The 2024 conference was directed by Dr. Celes Woodruff, Ms. Colleen Watson, and Dr. Mike Lam.

Acknowledgement: The conference organizers thank Dr. Prabhashi Withana Gamage for conducting the statistical analysis that forms the basis of this report.