



Preliminary Results of the GMU-Amazon Externship Experience

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September 1, 2021

Highlights from the Survey Results

(see page 2 for a complete table)

- A higher percentage of teachers reported that they plan to teach computer science after participating in the GMU/Amazon Experience.
- A higher percentage of teachers reported feeling secure about attempting to teach computer science after participating in the GMU/Amazon Experience.
- A higher percentage of teachers believe they can be successful in teaching computer science after participating in the GMU/Amazon Experience.
- A higher percentage of teachers reported having a lot of self-confidence for teaching computer science after participating in the GMU/Amazon Experience.
- A higher percentage of teachers reported that they study computer science because they know how useful it is after participating in the GMU/Amazon Experience.

Table 1

Comparison of Responses to Survey Items Before and After the GMU/Amazon Experience

	Before the Class and Externship (n= 20)			After the Class and Externship (n=15)		
	disagree/ strongly disagree (%)	agree/ strongly agree (%)	Don't know (%)	disagree/ strongly disagree (%)	agree/ strongly agree (%)	Don't know (%)
I plan to teach computer science.	0%	86.36%	13.64%	0%	93.33%	6.67%
Generally, I have felt secure about attempting to teach computer science problems.	31.82%	68.18%	0%	20.00%	80.00%	0%
I am sure I could do advanced work in teaching computer science.	13.64%	86.36%	0%	20.00%	80.00%	0%
I can be successful in teaching computer science.	0%	95.24%	4.76%	0%	100%	0%
I have a lot of self-confidence when it comes to teaching computer science.	23.81%	71.43%	4.76%5	6.67%	93.33%	0%
I'm no good at teaching computer science.	90.47%	0%	9.53	93.33%	0%	6.67%
For some reason even though I work hard at it, teaching computer science seems unusually hard for me.	85.71%	4.76%	9.52%	80%	0%	20%
I'd be happy to get recognized for teaching computer science.	0%	95.24%	4.76%	0%	100%	0%
I'll need to know how to teach computer science for my future work.	15.00%	80.00%	5.00%	13.33%	86.68%	0%
I study teaching computer science because I know how useful it is.	5.00%	90.00%	5.00%	0%	100%	0%
Knowing how to teach computer science will help me earn a living.	15.00%	85.00%	0.00%	6.67%	93.33%	0%
I'll need a firm mastery of teaching computer science for my future work.	10.00%	80.00%	10.00%	13.33%	80.00%	6.67%
I am challenged by computer science problems I can't understand immediately.	10.00%	85.00%	5.00%	13.34%	86.67%	0%

Has your interest in computer science changed because of the Amazon/Mason Externship Experience?

Amazon and George Mason have added many more dimensions to my understanding of computer science education, the application of computer science, and the power of collaborating with others in this domain. My interest has become deeper and my appetite for computer science has increased dramatically. I feel more confident in my interest in computer science and I am more motivated to dive deeper into computer science related fields. I now feel more confident in learning higher levels of computer science and also teaching more challenging CS courses. For instance, this year I'm teaching 9th grade Exploring Computer Science, and I'm more excited and confident in my abilities after the Amazon and George Mason experience. The course with Dr. Kaya gave me a lot of insight about how to teach computer science and how to use resources and where to find some of the best resources. It was also incredibly beneficial to complete a group project that helped me learn more about computer science being done by students who have disabilities or are visually impaired. I was enlightened to learn about Code Jumper, a device that makes coding much easier for students who are blind or visually impaired. Furthermore, everything I learned about equity and the way it relates to computer science and teaching CS will be important for me when I teach CS in underserved communities.

Yes because I was exposed to the different aspects of the topic and loved meeting people in the meetings. Also, equity is a major part of why computer science is important to me

The Amazon/Mason Experience has help me with ideas with this upcoming year as this will be my first year teaching computer science.

Yes. My interest has increased in computer science to be able to give more opportunities to our students in the technology fields. I learned that computer science is broader than I originally thought.

Yes, I have a much better understanding of the full range of what the field of computer science entails (Internet of Things, AI, 3D printing, etc), what a career in computer science can look like and involve, as well as the different routes that people have taken and can take to get there.

My interest has grown since starting this problem. Amazon had exposed me to more opportunities in computer science.

Yes. It has expanded to more than just coding.

Yes. I am more interested in Computer Science. Not a lot; but more than before the program.

Yes in some of the topics that had not been part of my class

No. I was already a CS teacher. I have just learned new things.

I feel like I have more resources and a better understanding of the cloud and AI

My interest in computer science has changed because this experience has lifted the curtain for me. I learned about various careers and concepts surround computer science. I also enjoyed the hands on experiences. I am much more comfortable with the idea of teaching computer science.

I am interested in teaching Alexa skills that then I can turn around and have my students do the same.

I don't think my interest in computer science itself has changed, but I think my interest in CS education has increased because I've learned about cool things to do in class.

No if anything it's increased it

Figure 1. Teachers' Responses About Interest in Computer Science After Participating in the GMU/Amazon Externship Experience

How do you perceive your participation in the Amazon externship program will be beneficial to your teaching?

The Amazon externship had a ton of valuable moments that I will keep with me forever. The externship gave me insight around computer science curriculum, the skills students need in the future to be successful in tech careers, the software available for students to use and experiment with, the importance of writing and thinking, and so much more. The externship gave me real world experience around how people in the tech world work together to build digital products and software to make other people's lives easier. Our experience with writing has encouraged me to expose students to many more writing assignments that are connected to computer science. Good writing means good thinking. If scholars can write better and articulate their thoughts around computer science concepts more clearly, it will prove me how well they truly understand those concepts and their application. This externship has also made me more knowledgeable about the careers available in the tech sector. The amount of variety available is extensive and I'll be better prepared to share this information with students. This will give students a better idea about the abundance of directions they can take in regard to college and career.

It not only exposed me to the different technologies and part of computer science, it also helped men understand project based learning better

The participation in the Amazon externship will be beneficial to my teaching because of the connection that I made. Meeting Dr. Kaya is a great asset and I look forward working with him after this program as a mentor in computer science.

I will use this program to open my ideas to help the students learn computational thinking and problem solving.

Now I have in my tool belt a whole host of resources that can both both get students interested in computer science (like the Amazon Class Chats) and also develop their CS skills.

I will be able to share more diverse opportunities in the world of computer science with my students.

It has broadened my horizons in CS, so I am more aware to what is out there

I will start an After School Computer Science Program at my school. We do not have a computer science class at my school.

Activities I can share with my class and extending my comfort and use of pbl in class

I have learned about Amazon resources I can share with students and their teachers. I have learned about what students should know.

I will be able to bring writing tools and AI knowledge used in the field to my students. I also feel personally more confident that CS will be useful to my students and help them be competitive in the workforce.

This experience will be beneficial because of the concepts I have learned and the connections I have made. I now have more resources and experiences that I can share with my students and peers.

It opened a world of possibilities that I may share with my students.

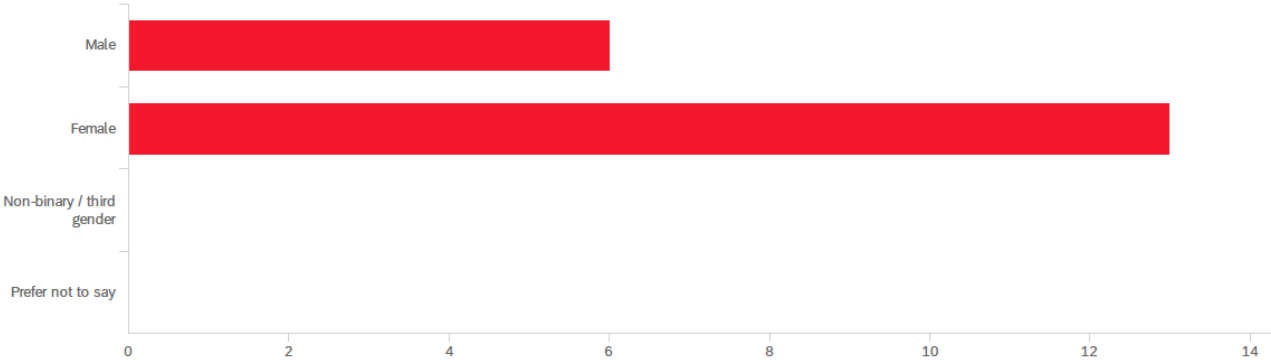
I made professional connections and learned about a lot of activities and ideas I can apply to my teaching

It was quite informative and provided me with a bunch of good online resources to use

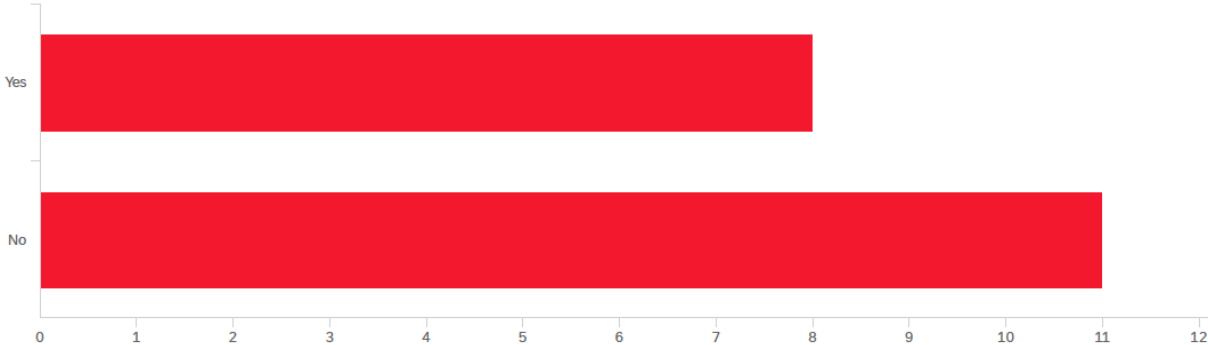
Figure 2. Teachers' Responses About Benefits of the Program After Participating in the GMU/Amazon Externship Experience

Demographic Information of Participants

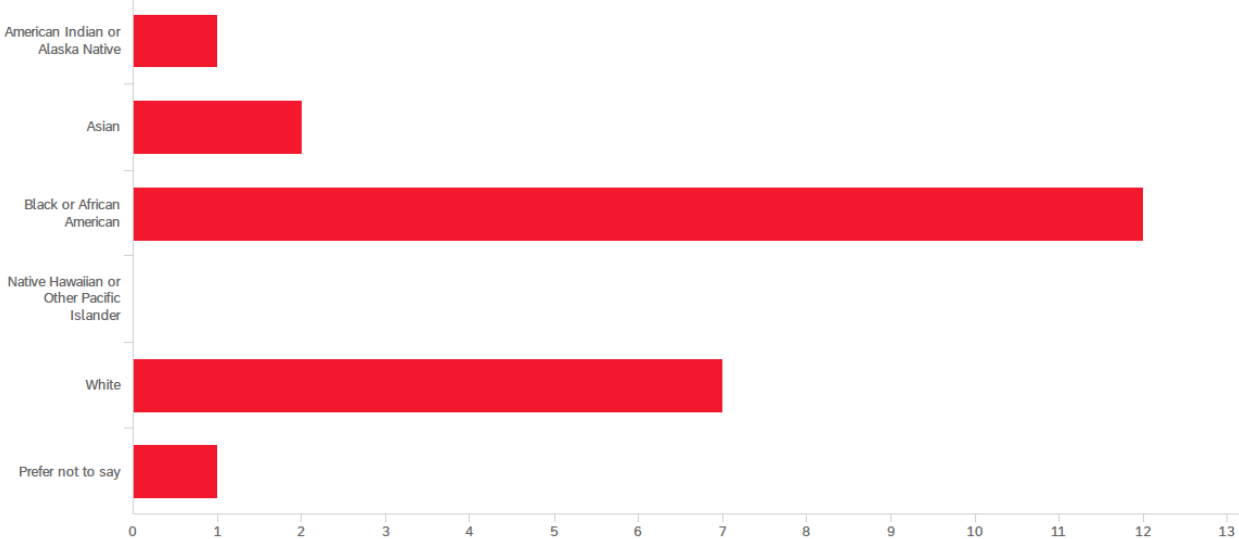
Gender



Are you currently a computer science teacher?



How would you describe yourself?



What grades do you currently teach?

