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Michigan Governor Snyder Honors Leaders –
Students for Females in STEM Club at State-of-the-State Address

Lansing, Michigan - Michigan Governor Rick Snyder credited four leaders of the East Lansing High School Students for Females in STEM club with bringing "him the idea" to promote K12 computer science education in Michigan schools. Snyder invited Katie Knox, Taylor Murray, Sophie Steiner, and Samantha White to the state of the state address where he recognized them for turning what he thought was a photo op into a half hour meeting in which they cogently lobbied for expanding access to K12 computer science classes.

From Michigan Governor Rick Snyder's State of the State Address:

We need to do better with computer science education, computer education and cyber security in our schools, K12, there is no time to wait. Actually there is a recent study that said that 71% of the STEM (Science, Technology, Engineering, and Math) jobs of the future will need to have more knowledge about computer coding, computer science and such. 71%. Think about your schools in your area and think about what they're teaching. We have a huge gap and we need to close that gap. And so I look forward to creating a work group to work with the legislature, the superintendent on coming up with great ideas about how to encourage more of this and you're going to find us willing to make investments, it's that important.

Now the wonderful part of this story is that our young people see this. So I had a meeting this year and I thought I was just doing a photo opportunity, they didn't even give me a staff person with me. And I was to take a picture with four wonderful women from East Lansing High School. They had achieved something they had started a group called "Students for Females in STEM." They walked in my office, I thought I was taking a picture, and they gave me 2 minute elevator pitches from each of the four about how we had to get our act together in Michigan on this issue and they were right and they are with us tonight.

Students for Females in STEM Club response:

The Students for Females in STEM club appreciates Governor Snyder's focus on Michigan's K12 computer science education gap in his address and recognizing our advocacy efforts. We are pleased that Michigan is part of the national K12 computer science education movement and see this as an important step toward ensuring all MI students get a chance to take computer science and high quality STEM classes especially at the K-12 level.

The SFS Journey ... Women Not Going into STEM? How A Little Outrage and Saying “Yes” to Opportunity Can Go a Long Way

How did we get here? We love our math and science classes and have also been encouraged to pursue them. We never imagined that there weren't as many women pursuing these fields as men. In fact, we often do better in these classes than boys and have never been told we shouldn't be able to achieve whatever we want in these areas.

So we were shocked to learn that there is a huge disparity of women pursuing these fields in comparison to men. We read about it and then, working with Katie's Aunt who works in Washington, DC, we set up a trip and met with many 13 professional women in the STEM fields to learn more about this problem. Some of our findings are on our website.

The interviews yielded obvious themes (1) sometimes girls stop pursuing STEM subjects as early as elementary school not because they can't but because they think the classes get too boring and they want friends in them so they feel more like they belong in them (2) even though there are many STEM opportunities offered by national organizations like Smithsonian or Code.org many local teachers and students just don't know about them and (3) getting more in-school programs like computer science classes offered is much harder than a school adding an afterschool program. Armed with this experience and this new understanding – we launched a new club at East Lansing High School called [Students for Females in STEM](http://femalesinstem.org) (<http://femalesinstem.org>) and committed to a two-fold mission: **advocacy** and **educational outreach**.

Advocacy

- The Computer Science Education Coalition (CSEC see <http://www.csecoalition.org>) invited us to share how we felt about East Lansing High School not offering AP computer science with Senator Debbie Stabenow, Senator Patty Murray, and Senior Advisors at the White House.
- Each year the National Governors Association hosts its summer meeting allowing governors to discuss common and critical policy areas. Last summer NGA organizers worked with Code.org and CSEC to ensure more governors understood the importance of expanding access to computer science education at the K12 and provided them with the opportunity to write lines of code. Along with groups of students from around the country – SFS leaders – helped Governors from IA, KY, AR, VA, MD, and UT complete an Hour of Code. See www.GovernorsforCS.org for more information about this program.

- Because Michigan Governor Rick Snyder couldn't attend the National Governors Association coding program, he invited a small group of SFS members to talk with him in August. Although his staff scheduled only five minutes for us, the governor ended up talking with us for thirty minutes. During this discussion we outlined tough computer science Michigan facts **found on Code.org's website (see www.code.org/promote/mi)**
 - **Michigan currently has 14,535 open computing jobs (3.9 times the average demand rate in Michigan).**
 - **The average salary for a computing occupation in MI is \$78,001, which is significantly higher than the average salary in the state (\$46,310).**
 - **Meanwhile Michigan had only 1,612 computer science graduates in 2014; only 15% were female.**
 - **Last year only 16% of Michigan high schools offered the AP computer science course, only 962 students took the exam, only 22% were female, and 64 of them were minorities.**
 - **Finally, the College Board reports that if a female high school student takes AP computer science they are 10 times more likely to pursue it in college.**
- **We requested three policy changes: require that all secondary schools offer computer science; define K-12 computer science standards; and allocate funding for rigorous computer science teacher professional learning and course support.**
- Within a month the Governor Snyder sent his senior policy strategist to talk more with us at our school. Further – Governor Snyder
 - set up a meeting for us with the Democratic vice chair of the House Education Committee, Representative Adam Zemke;
 - invited us to attend Governor Snyder's 2016 North American 5th International Cyber Summit in Detroit; and
 - asked us to give a thirty-minute presentation to the Michigan State Board of Education meeting on December 13 (the last board meeting to be led by Swarthmore alum John C. Austin). During all of these meetings our policy requests remained the same.
- We look forward to working with the Governor and education leaders of Michigan will address the lack of access to K12 computer science education in Michigan.

Educational Outreach

- During the 2015 and 2016 National Computer Science Education Week, we organized a new Mid-Michigan community-based program called “Coding and Cookies,” during which families completed an Hour of Code together. Hour of Code is an online tutorial and international program that teaches children the fundamentals of computer programming. In 2015, fifty families participated, and this year more than one hundred and twenty families participated.
- The Club participated in East Lansing public schools’ science nights and STEAM days (which integrates the arts to the STEM disciplines) at elementary and middle schools. There, in addition to demonstrating science experiences and discussing the formal STEM curriculum with teachers, we spoke elementary and middle school girls about sticking with science and math classes even when it seems like an unpopular decision.
- To kick off the 2016-17 school year we presented to all of the East Lansing Public School teachers about how to design more authentic collaborative and experiential lesson plans especially in science and math during their “welcome back” professional development program. One of the teachers emailed after our presentation and said that he redesigned a few of his lessons because of our presentation.