



Michigan Photonics Cluster

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What is the Status of the Current STEM Environment in Michigan?

Introduction:

Gary Farina, Executive Director for the Michigan STEM Partnership, was the keynote speaker at the Mi-Light Spring Renewal Member Meeting. Since the meeting was hosted by Baker College, it was appropriate to check in on how STEM education is doing in the state. Many people do not know what photonics is and so we can relate in trying to get more children educated in the sciences as early as possible. Here is what Gary had to say in this interview.

Interviewer: What are the goals of the Michigan STEM Partnership (MSP)?

Gary: The overarching goal of the MSP is to be the primary contributor to the growth and development of STEM and STEM education in Michigan by promoting STEM, engaging stakeholders, and connecting resources. The recent focus has been to develop a statewide regional STEM network where regional development needs could be addressed through a sustain effort that engages cross-sector stakeholders in a planning effort and the necessary resources to implement the plan. Current efforts have been focused on establishing one or two of these regional STEM initiatives within the next year.

Interviewer: Michigan Stem Partnership was created by the Governor in 2013. How large is the organization now in terms of employees and geographic reach?

Gary: When the Partnership was established, it was provided both operational and development funding through the Michigan legislature. Developmental funding provided for STEM developmental grants to schools and/or nonprofit organizations. Over 80 grants were provided across Michigan in three years that engaged over 50,000 students. While many great things occurred for students, evaluations of the process yielded a number of concerns. The major issue was sustainability of the STEM effort once the grant funds were gone. Additionally, the funding guidelines did not allow for a more direct regional effort which could support the plans of regional leadership teams that were directing the Partnership Hubs at the time. In 2015 the Partnership state board of directors moved the organization to a self-funded 501c(3) organization, eliminated the geographic Hub structure, and moved to establishing the regional STEM network model. Currently, the Partnership has an executive director, a 24 member State Board of Directors (made up of business, educators, community and professional organizations, and government), multiple partnering organizations, and other volunteers from around the state. While we are engaged with people and organizations statewide, most of the active development is taking place in southeast Michigan with the prospect to expand promising practices to other areas of the state.

Interviewer: What have been some of the challenges in accomplishing your goals?

Gary: Certainly funding is the greatest challenge, both for developments and operations. Additionally, as the Partnership accomplishes more, additional opportunities are presented that tax our current capacity, and increases the need for additional funds. One thing that is not a

challenge is engagement. There are many people, and organizations willing to engage with us to provide development initiatives that increase STEM learning opportunities for youth, and address the talent needs in Michigan.

Interviewer: How is Michigan STEM Partnership funded?

Gary: The Partnership is primarily funded through grants and donations. Fundraising is a major effort and we seek out opportunities that provide funds for both developmental needs and operations. Two examples include: a grant for the development of a model for STEM professional development for educators funded through the Consumers Energy Foundation; and a state planning grant through the Bosch Community Fund. We actively pursue funds through grants, and are appreciative of any donations. Donations can be made directly through our website at mistempartnership.org.

Interviewer: What is the most significant trend in STEM education in grades K-12?

Gary: While it is not really a trend, the most significant effort in grades K-12 is the implementation of the new Michigan Science Standards. Adopted by the State Board of Education in November 2015, these standards change the way science is taught by engaging students in doing science with the same practices used by scientists and engineers. Instructional delivery includes inquiry, and project/problem based hands-on activities. The design allows students to see connections of disciplinary-based core ideas, and allows delivery across content areas. Trends that we do see include: coding, especially opportunities in the earlier grades; engineering, and the makerspace movement that provides available materials, tools, and modern technology allowing project-based learning activities which require problem solving, critical thinking, innovation, and invention-on-demand.

Interviewer: What is the most important initiative Michigan STEM Partnership is working on and what makes it so important?

Gary: The Michigan STEM Partnership/Southeast Michigan STEM Ecosystem Alliance was just selected by the STEM Funders Network (a national coalition of philanthropic organizations) as a STEM Learning Community of Practice. The announcement was made at the U.S. News STEM Solutions Summit on June 25th in San Diego, CA. This is the first long term sustainable regional initiative for our state Regional STEM Network, and will address STEM needs in seven counties including Macomb, Oakland, St. Clair, Genesee, Livingston, Washtenaw, and Wayne. Efforts will soon begin to expand the representation of the cross-sector leadership Alliance and establish a regional network for input and feedback. Once an assessment of the regional STEM landscape is completed, and developmental initiatives can be planned and scaled, it is expected that the necessary funding can be generated to system build and provide new/enhanced STEM learning opportunities that address regional talent needs.

Interviewer: What are your plans for the future of Michigan STEM Partnership?

Gary: The Michigan STEM Partnership currently has eleven STEM developmental initiatives so efforts for the near future are focused on those. These include: the development of a mobile STEM Education and Training lab that can travel to schools to engage students, and educators in activities that demonstrate the need, economic value, and various career pathways in STEM; provide professional learning opportunities to teachers; and also provide community outreach activities. We are also working with the Challenger Center in Washington D.C. to bring a Challenger Learning Center to Detroit. These centers provide space flight simulation experiences to students through a full mission control room, and high tech space station to

deliver various scenarios that integrate STEM, require team problem solving, and assist in the career decision-making process. Beyond our current initiatives, we will work to provide additional regional STEM initiatives across the state with local leadership groups and long-term sustainable developmental initiatives specific to that region.

Learn more about the Michigan STEM Partnership at mistempartnership.org.



Gary Farina addressing members at the
Mi-Light Spring Renewal meeting