



AB 665 Wisconsin Robotics League Participation Grants

Testimony of Senator Steve Nass

Assembly Committee on Education

January 14, 2016 • 417 North, State Capitol

Thank you Chairman Thiesfeldt for holding a public hearing and allowing me to provide written testimony on Assembly Bill 665. This legislation will create a grant program through the Department of Public Instruction to encourage Wisconsin students in grades 9–12 to participate in robotics competitions.

In order for our students to compete and succeed in the 21st Century, it is imperative that school curriculums include more opportunities for students to participate in activities related to science, engineering, technology, and math. Participation in robotics competitions will help foster students' interest in these fields and provide additional opportunities to improve their technical skills and knowledge in these vital subjects.

Robotics competitions for students are increasing in popularity across the country. This grant program will help provide the seed money for students to assemble teams to compete in competitions, and facilitate independent fundraising efforts to supplement the grant funds provided.

The bill allows a robotics team to apply for up to a \$5,000 grant that can be used for expenses related to a robotics competition. Allowable expenses are limited to fees, kits, supplies, or travel expenses required to participate in competitions, and a stipend for the mentor of an eligible robotics team.

AB 665 limits the total dollar amount of grants awarded to \$500,000 for the 2016-17 and 2017-18 school years. It allows all students in the state between 9–12 grades to be eligible to apply for a grant, regardless of where they are receiving their education, including traditional public school, charter school, homeschool, etc.

Thank you again for the opportunity to provide testimony in support of AB 665. If any committee members have further questions, please do not hesitate to contact me.

“In God We Trust”

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Adam Neylon

State Representative • 98th Assembly District

DATE: January 14, 2016
FROM: State Representative Adam Neylon
TO: Assembly Committee on Education
RE: Supporting AB 665

Dear Members of the Committee:

At one time Wisconsin brewers bottled beer by hand, and auto workers assembled cars one piece at a time on Henry Ford's assembly lines. Both industries gave way to automation, and now machines handle much of the work more efficiently than humans. The fact is, 21st century manufacturing facilities have ushered a new wave of technologies like advanced robotics and fully integrated production systems.

I am here to testify in support of AB 665, legislation to create the Wisconsin Robotics League state grant program to authorize up to \$500,000 of funding to the Department of Public Instruction (DPI) to be disbursed to robotics teams throughout Wisconsin. It will allow a school sponsoring a robotics team to apply, through DPI, providing up to \$5,000 for allowable expenses: (competition fees, travel expenses, robotics kits, paying a mentor/coach of the team, and other related team expenses).

According to a 2015 report by Deloitte Consulting: over the next decade, nearly three and a half million manufacturing jobs will need to be filled and the skills gap is expected to result in 2 million of those jobs going unfilled. There are two major contributing factors to the widening gap – baby boomer retirements and economic expansion. An estimated 2.7 million jobs are likely to be needed as a result of retirements in the existing workforce, while 700,000 jobs are likely to be created due to natural business growth. In addition to retirements and economic expansion, other factors contribute to the shortage of skilled workforce, including loss of embedded knowledge due to movement of experienced workers, a negative image of the manufacturing industry among younger generations, lack of STEM (science, technology, engineering and mathematics) skills among workers, and a gradual decline of technical education programs in public high schools.

Our students are up to the challenge of meeting tomorrow's workforce demands. I believe they deserve an opportunity to compete against the rest of the world and develop skills for the rest of their lives, while working together in a team-first environment.

Thank you for your support.

Date: January 14, 2016

From: Nathan Nolte

Technology and Engineering Instructor, Fox Valley Lutheran High School

Advisor, FVL Robotics

Commissioner, Fox Valley VEX Robotics League

President, Fox Valley Competitive Robotics

To: Assembly Committee on Education

Testimony in Favor of Wisconsin 2015 Assembly Bill 665

Thank you for the opportunity to speak today in support of Assembly Bill 665. My name is Nathan Nolte and I serve as a technology and engineering instructor at Fox Valley Lutheran High School in Appleton. I also serve as the advisor for the FVL Robotics Program. I'd like to share our experience with competitive robotics through the VEX Robotics Competition.

Six years ago we started the FVL STEM Academy at Fox Valley Lutheran High School, which is a Project Lead the Way Engineering program that teaches STEM through project and problem based learning. We wanted to add a co-curricular component to give our students the opportunity to enhance their STEM skills outside the classroom. We found the VEX Robotics Competition to be a natural fit, as our students were already using the VEX robotics platform in the Project Lead the Way classes. We started the first FVL Robotics VEX team five years ago with a handful of students and one robot. Since then we have grown to have six teams with over 30 students participating and have won multiple local, regional and state competitions. Our team has also been able to represent Wisconsin at the VEX World Championship the last two years.

I have found the VEX Robotics Competition to be a great option for competitive robotics for my students. Through the program students need to design, build, program, and drive a robot each year to play a season specific game. They get to practice and put to use the engineering and technical skills they are learning in the classroom in a real-world environment. Even more important are the professional soft-skills that they develop in the program – working collaboratively, documenting their work, maintaining a project timeline, developing presentation and communication skills and more. These students are developing the technical and professional skills that they will use every day as they continue on into higher education and the workforce, all while having a lot of fun doing it.

In the VEX Robotics Competition, teams both compete against and work collaboratively with other teams at every competition. For each match, robots from four random teams play as two alliances against each other. This collaboration gives the VEX Robotics Competition a different feel from most other interscholastic competitions. Teams from different schools work to help and support each other and build each other up, which is a refreshing change from many other competitive environments.

VEX Robotics also stands out as a very affordable and accessible program. A single team made up of about 4 to 6 students can get started with about \$1000 worth of hardware and register and attend several competitions in a season for a few hundred dollars more. The hardware is reusable year after year, so sustaining the program is also affordable. The grants proposed in the legislation of \$5000 would be sufficient to start multiple teams at a school or organization and provide a lot of value for the investment.

We have had a lot of success in northeastern Wisconsin with VEX Robotics. We have a large concentration of highly successful teams and have been able to build a large capacity for competition opportunities. Throughout the season of roughly October through February there are over a dozen different weekend tournament opportunities. In the Fox Valley area, several established teams including my own have worked together to hold a VEX Robotics Competition League with biweekly competitions with about 40 teams competing. This past fall we partnered with the UW Fox Valley Continuing Education office to offer youth robotics classes to the community. Other areas of the state are not as well represented in VEX Robotics, and I believe the grants proposed in this legislation would help to grow the program throughout the state.

While the proposed legislation is geared specifically towards high school age students, I wanted to mention that there are also great opportunities for students in both middle and elementary school in the VEX Robotics program. Wisconsin has about 60 middle school teams in the VEX Robotics Competition. VEX also has a new program geared for elementary and middle school students, called VEX IQ. I personally have an 8 year old and 11 year old that compete in this program. The VEX IQ program is a great introduction to robotics and robotics competitions for younger students and has an even lower barrier for entry, with teams being able to get started with as little as \$500. I would encourage this bill's author, sponsors and this committee to consider expanding the support of competitive robotics even beyond the high school ages, either in this bill or in future legislation should this program be approved and prove successful.

VEX Robotics is not the only option for competitive robotics, but I believe it to be a high-quality, affordable and sustainable program that provides a lot of value. I am excited about the opportunities that this proposed bill will give to students in Wisconsin, whether through VEX Robotics or other robotics programs. Thank you for the opportunity to address you today. I would be happy to answer any questions that you might have.