

Testimony by
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In support of GRF 200597 as part of H.B. 64
Education Program Support

FIRST (For Inspiration and Recognition of Science and Technology)

Chairman Smith, Vice Chair Schuring and members of the committee. I am Dr. Andrew Bruening, a founding and current faculty member of Metro Early College High School, Director of the Fab Lab at the PAST Foundation and I am on the board of the Central Ohio Robotics Initiative.

I am the coach/mentor of FRC Team 3324 the Metrobots from Metro Early College High School. I have been coaching the team for 6 years because of the incredible experience *FIRST* offers students. *FIRST* is a perfect example of an authentic, high stakes challenge in which we encourage all Metro students to participate. *FIRST* robotics is built into Metro's high school curriculum where the students design, build and test the robot as part of the robotics course. Participation in *FIRST* programs allows students to gain the essential skills necessary to be successful in college and beyond. Additionally, *FIRST* teams are also encouraged to make connections within the community. These connections include providing outreach to younger students by mentoring the other *FIRST* programs (FLL and FTC), connecting with local university engineering students, and area businesses.

Students are exposed to more than just STEM fields through *FIRST*. Our FRC team is run like a small business where we have administrative sub-teams, technical engineering sub-teams, and marketing and fundraising sub-teams. *FIRST* is the kind of challenge that can include the entire school from math and science teachers to art, social studies, English, and even foreign language teachers. This is a true interdisciplinary way to connect content areas throughout the school.

In order for teams to be successful, students must be strong critical thinkers, better communicators, and inquiring and engaged learners. These are the skills that will make them future leaders, CEO's, engineers and physicians.

Overall, participation in *FIRST* provides students with real-life experiences that go beyond the classroom. I believe that without *FIRST*, teachers and schools have a difficult time replicating the real-world challenges that teachers are asked to train students for. In addition to the success that can be achieved through a *FIRST* team, it also illustrates how a "bad design" or "failure" is not an end point to a project. Rather, it is seen as just another step in the process. Students will learn more from "bad designs" and "failures" than they will from successful ones. Again this mirrors real life.

Over the last 6 years coaching FRC team 3324 I have had the opportunity to watch many students grow and develop into confident young adults. I have had students join the team as quiet, reserved individuals reluctant to share ideas or contribute in team design sessions. These students quickly realized that they had a lot to offer and began to engage in team discussions and even learned to lead sub-groups. *FIRST* offers a place for students to be part of a team with many other students and mentors with similar interests. This team atmosphere provides a safe social environment for students to grow and explore STEM fields.

Students that participate in *FIRST* programs are more likely to attend college, major in STEM fields, and become highly productive members of society. Every time I meet a current or former member of a *FIRST* team I am impressed by their professionalism and ability to communicate thoughts and ideas. In my 12 years of teaching high school I have not found a more authentic example of problem based learning than *FIRST* Robotics. Therefore, I fully support the passage of GRF 200597 Education Program Support, as part of House Bill 64.