

Global Innovation and Competitiveness

The US now ranks 40th out of the 40 countries and regions considered in “making progress on innovation and competitiveness.” *Information Technology and Innovation Foundation, The Atlantic Century: Benchmarking EU & U.S. Innovation and Competitiveness, February 2009.*

The Botball program facilitates student innovation through the use of autonomous robots (no remote control). Artificial Intelligence is used to complete the tasks. Students program behaviors allowing their robots to respond to their environment using sensor feedback. From autopilot systems on vehicles and airplanes to UAVs and space probes, innovation in autonomous systems is one of the keys to future global competitiveness.

Science, Technology, Engineering and Math (STEM)

One of the major recommendations coming out of the “Rising Above the Gathering Storm, Revisited: Rapidly Approaching Category 5” is the urgent need to encourage more US citizens to pursue careers in mathematics, science, and engineering. *Rising Above the Gathering Storm, Revisited: Rapidly Approaching Category 5*

The United States ranks 27th among developed nations in the proportion of college students receiving undergraduate degrees in science or engineering. *Organization for Economic Cooperation and Development, Education at a Glance 2009: OECD Indicators; Table A-3.5.*

Just over one third of Botball students were undecided about their college careers, and after participating in Botball 89% of these students are now considering a degree in a technical, science or math-related field.

Skills Students Learn by Participating:

In addition to math, science, engineering, programming and project management skills, students gain valuable practice and experience with:

Critical Thinking- Botball is an open-ended inquiry based program. The possible solutions, strategies and designs are nearly infinite.

Decision Making- Botball teams have a tight time frame to make strategy, design and production decisions. The tournament requires on demand decision-making.

Analytical Skills-The construction and programming is rigorous requiring acute analytical skills when diagnosing problems and implementing solutions.

Creativity/Innovation- Every team must use the same construction materials and controllers. However, no two robots, solutions or strategies are alike.

Collaboration- Teams compete with two robots. Teamwork and collaboration are required to successfully complete all of the tasks.

Problem Solving-Participants apply the content knowledge they gain in regular class to solving real-life meaningful problems.

Communication-A successful team must have good communication. This includes interpersonal communication skills, excellent technical writing skills for the documentation portion and presentation skills for the onsite presentation.

Adaptive Learning/Flexibility- Botball tournaments are dynamic and interactive. Students must problem solve and change mechanical systems, software and strategies on the fly.

Botball Impact

The Botball program has impacted approximately 103,205 individuals including 51,320 students since 1997.

About 3,653 teachers have participated in Botball and attended the Professional Development Workshop.

2,668 Botball kits have been distributed to students and teachers across the Nation.

About 4,200 students, teachers, parent, mentors and sponsors have attended our Global (formerly national) Conference on Educational Robotics over the past 7 years.

Our 2010 Botball teams were; 30% female, 39% minority, 66% were high school aged and 44% middle school aged, 62% came from public schools, 20% private, 7% charter, 3% magnet, 1% home school and 7% community organizations.

National Presence

