

Lawrence
Technological
University

LAWRENCE TECHNOLOGICAL UNIVERSITY
ROBOFEST

2023 Season Summary (Annual & Assessment Reports) and 2024 Plans

Appreciation Dinner

August 17, 2023

www.robofest.net

robofest@ltu.edu

248-204-3568

Room J233 Taubman Complex, LTU

21000 West 10 Mile Road, Southfield, MI 48075, USA

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2024 Staff Changes

Prof. Elmer Santos, Robofest Director

Ms. Shannan Palonis, Robofest Assistant Director

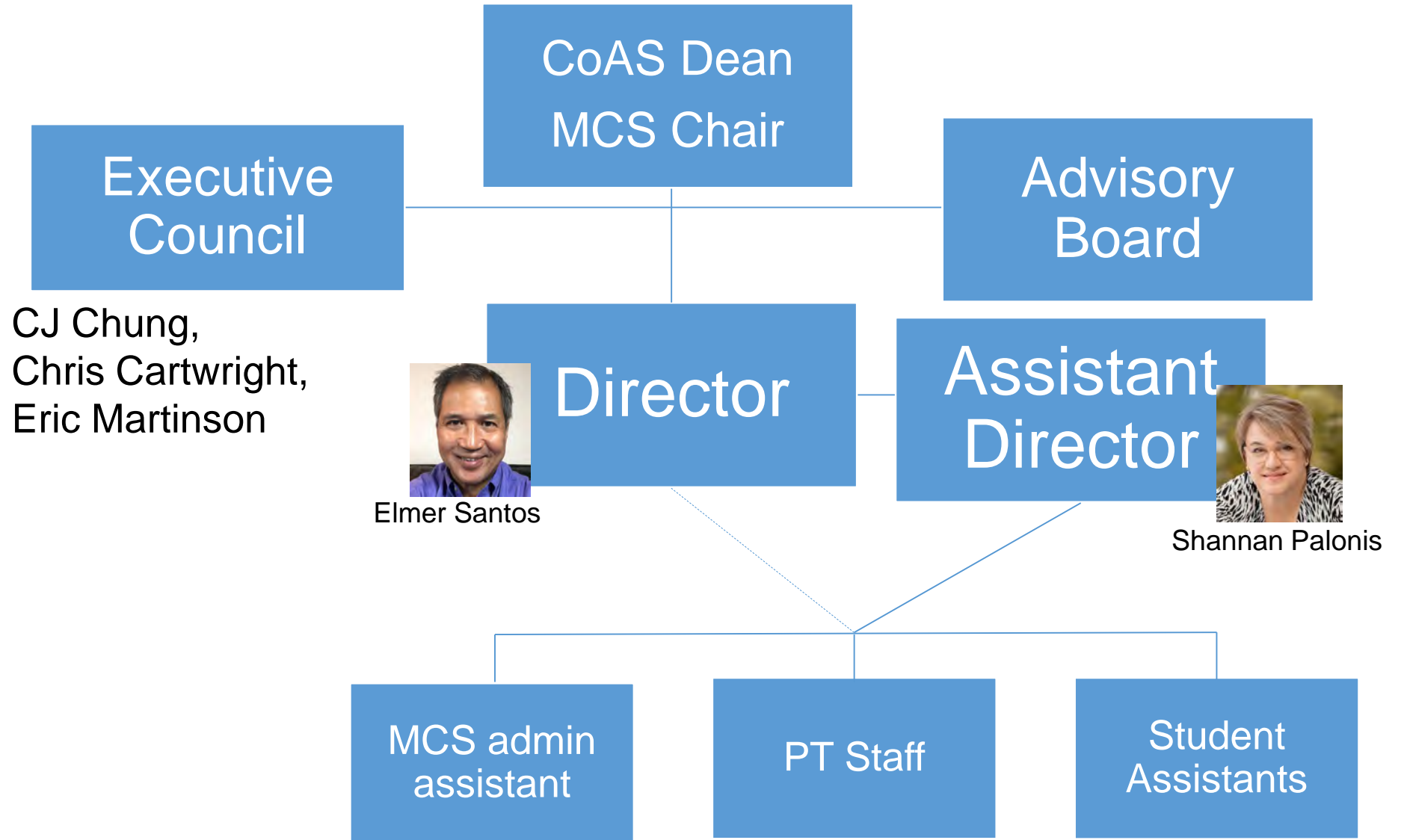
Ms. Pam Sparks, Robofest Coordinator

Prof. CJ Chung, Founder; Faculty Executive Council Chair

Prof. Christopher Cartwright, Faculty Executive Council Member

Prof. Eric Martinson, Faculty Executive Council Member

New Robofest Organization Chart



Robofest Advisory Board



Paul M. Akangah



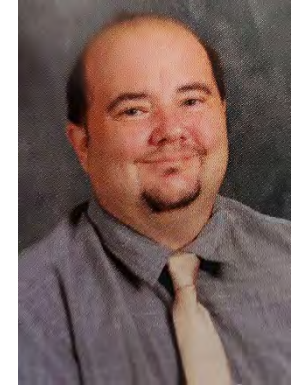
Emma Alaba



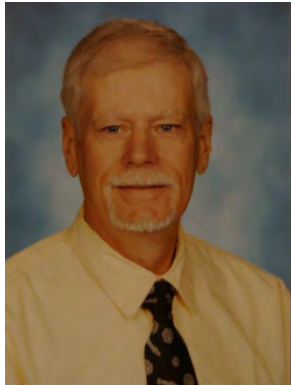
Phil Bigos



CJ Chung (Chair)



Gavin Coleman



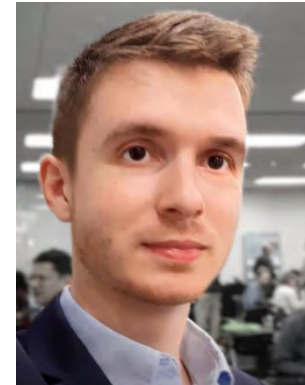
Scott Eisele



Linda Pence



Josh Siegel



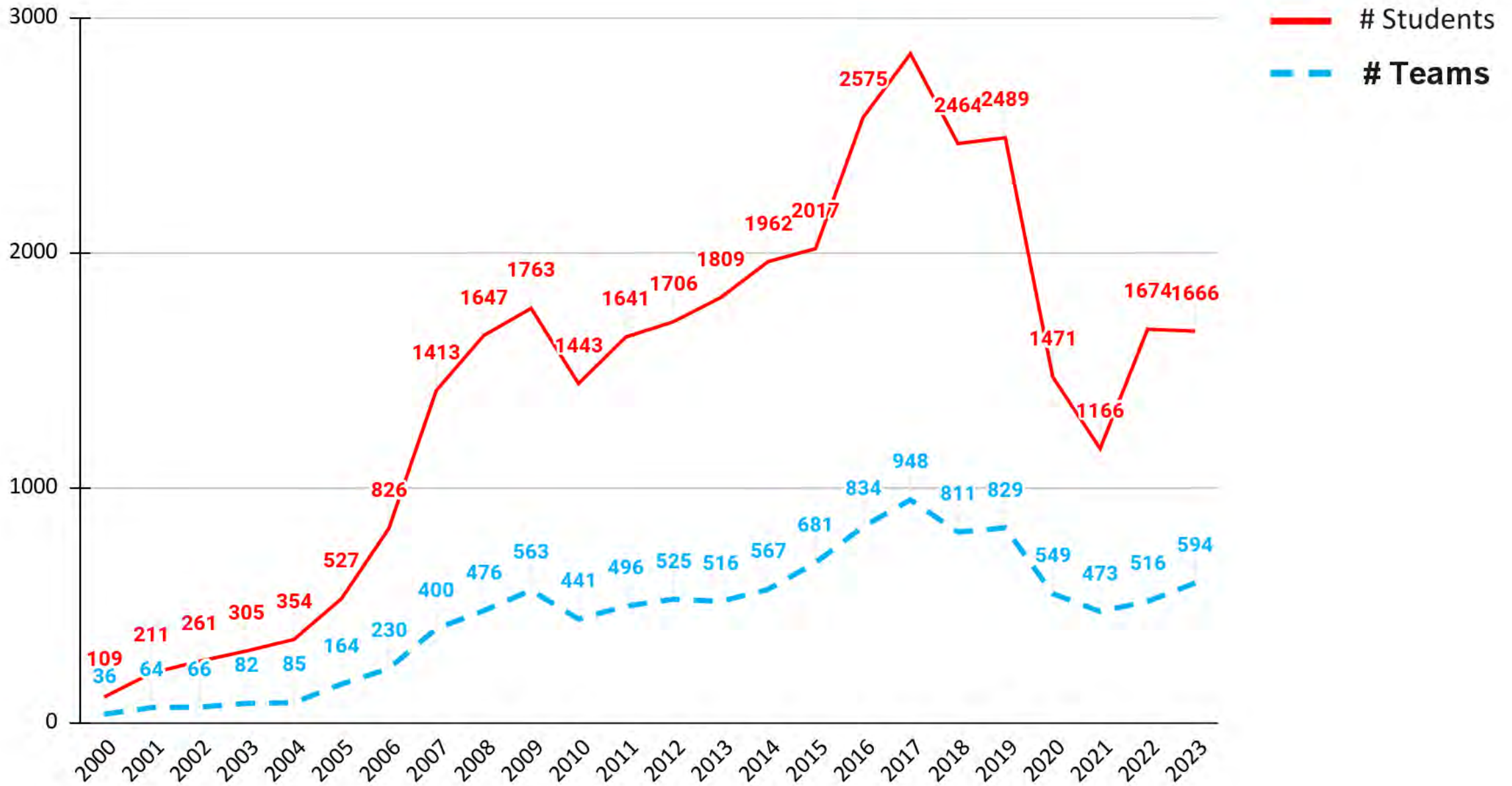
Gordon Stein



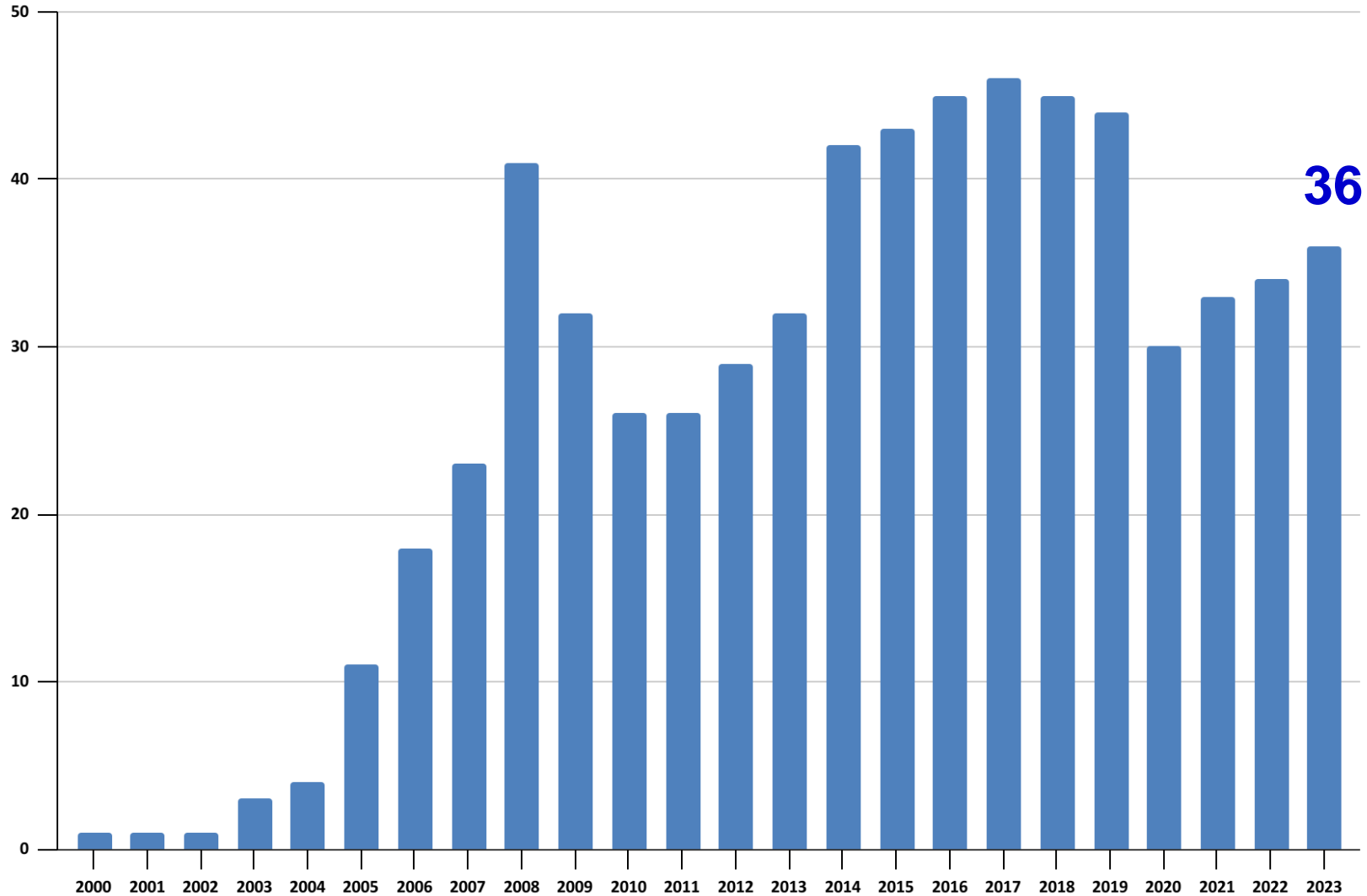
Maurice Tedder

24th Annual 2023

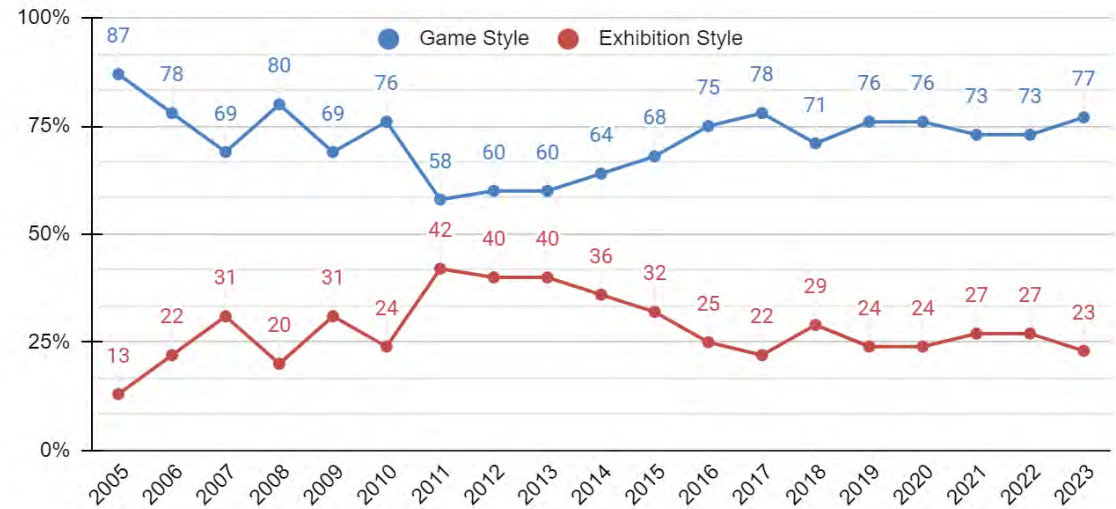
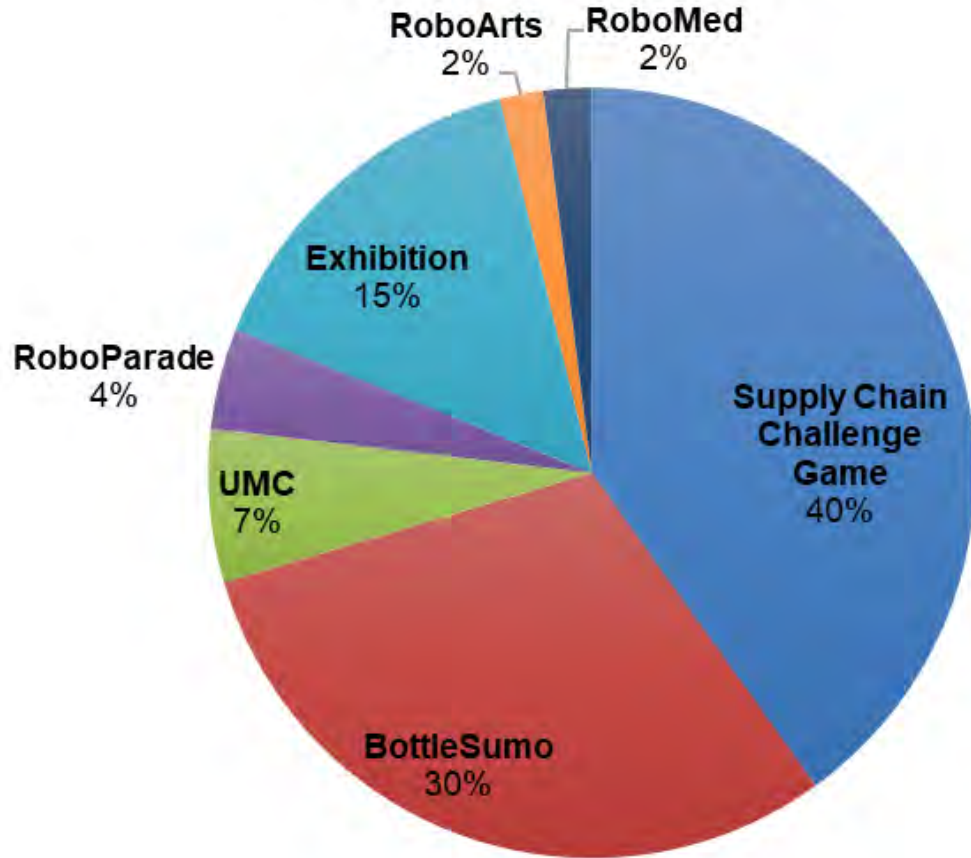
- **A total of 1,666 students**
- **543 teams**
- **6 US States:** Alabama, Florida, Minnesota, Michigan, Ohio, and Texas
- **17 countries:** Canada, Colombia, Ecuador, Egypt, Ghana, Hong Kong, India, Jordan (new), Macau, Mexico, Nigeria, Saudi Arabia, South Africa, South Korea, Taiwan, USA, and Uzbekistan (new)



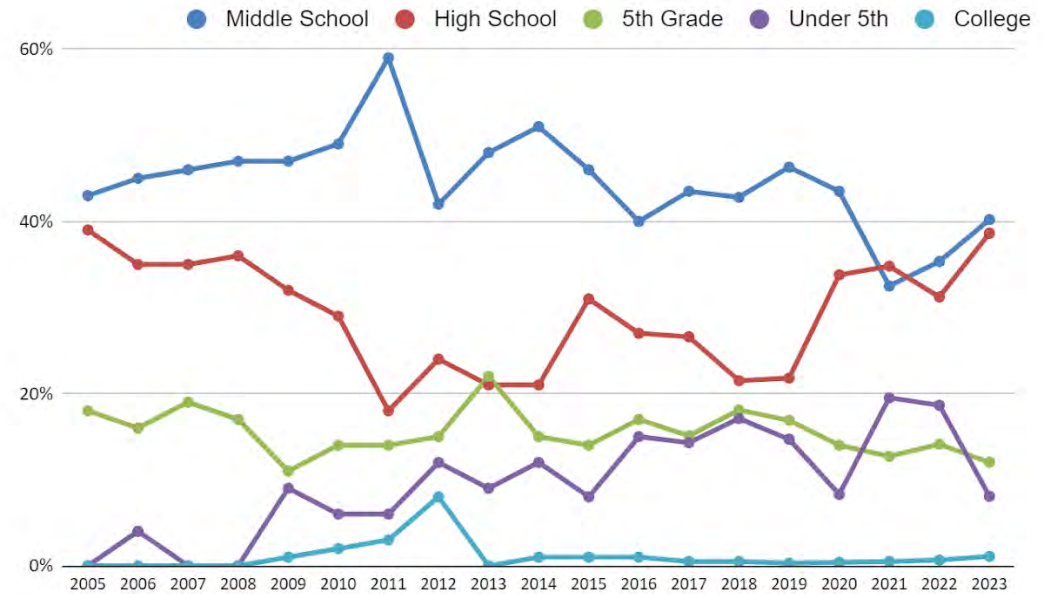
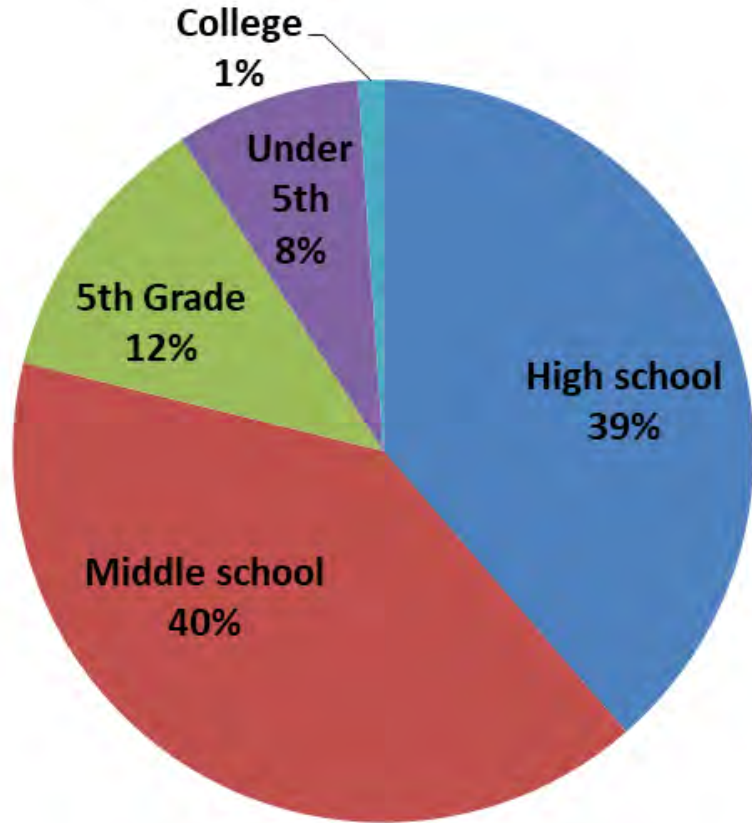
Number of Robofest competition sites since 2000



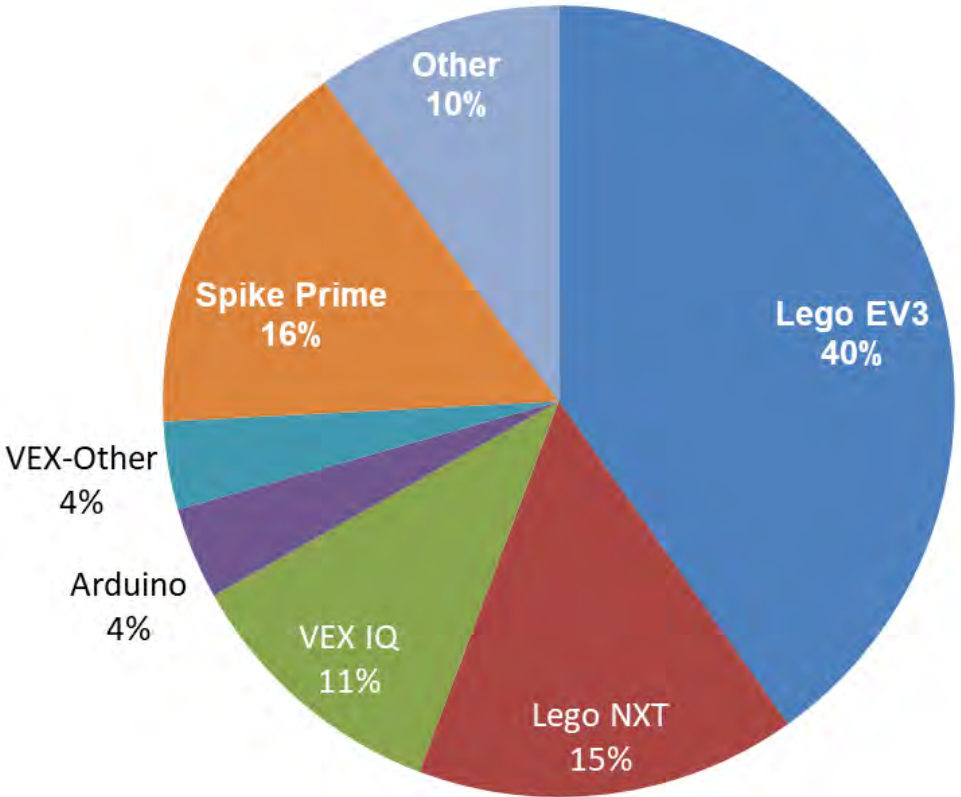
Percentages of Teams per Robofest Competition Category in 2023



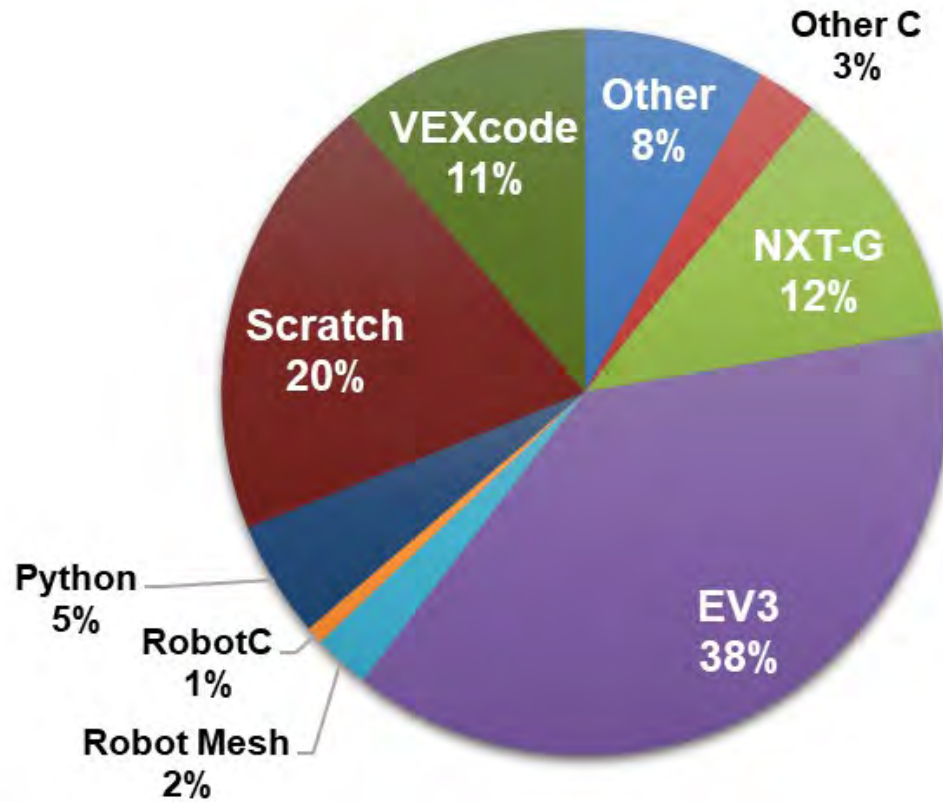
Percentage of Robofest student participation per age group in 2023



Percentages of robotics kits used by teams in 2023



Percentages of programming languages used in 2023



Annual Report

- Available at www.Robofest.net

2022-2023 Annual Report

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GOLD

CWT
michigan council of women
in technology foundation

SILVER

RoboMatter

BRONZE

PARTNERS

EVENT SPONSORS

FRIENDS

(Figure 1) Robofest Online World Championship 2023 participants and sponsors

Assessment Report

- www.Robofest.net

ROBOFEST 2022 ~ 2023 Annual Assessment Report

August 8, 2023 (Initial Draft Version)

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1. Robofest 2023 Coach & Volunteer Survey Results

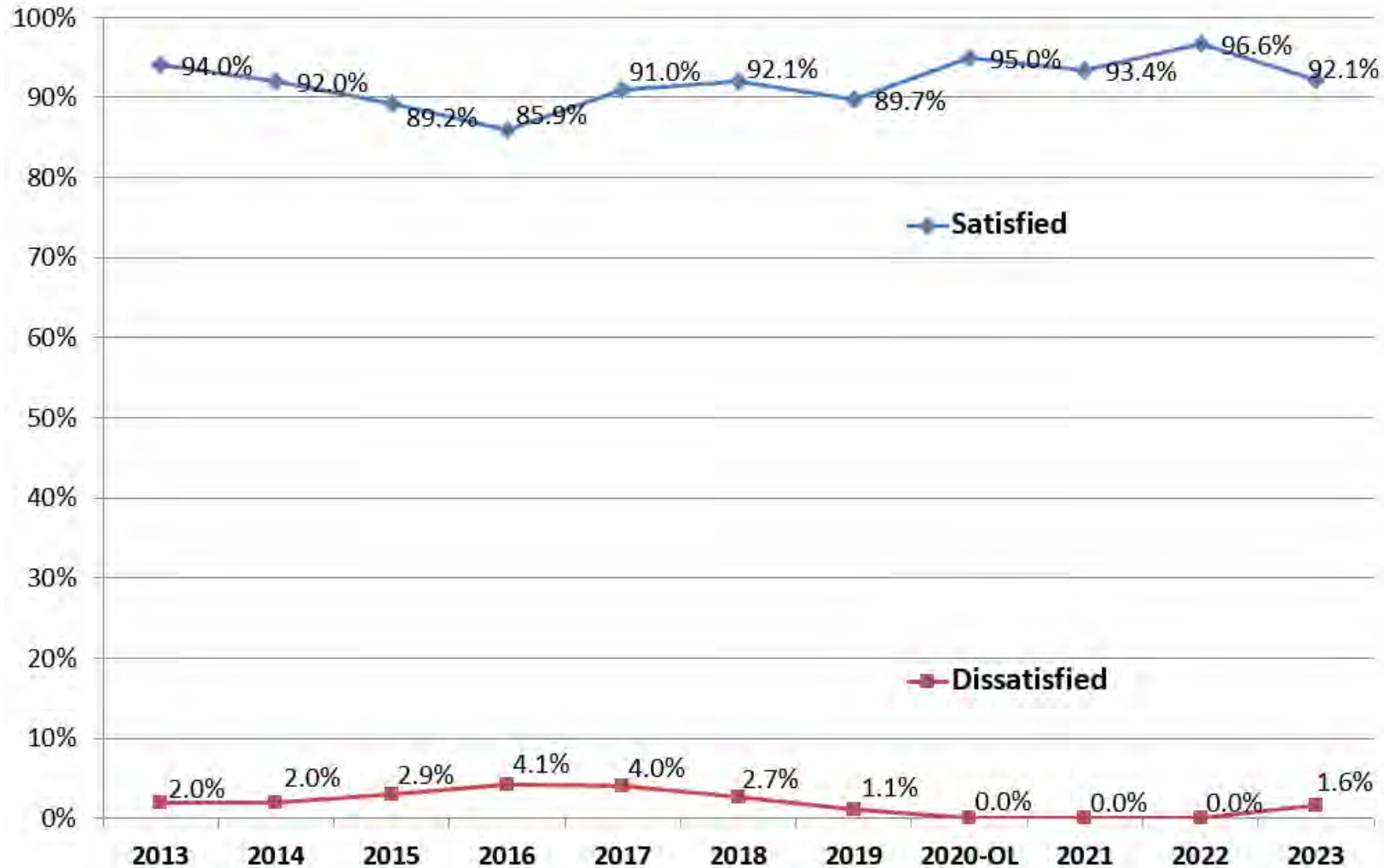
Anonymous surveys were conducted after World Championship competitions in June 2023. 31 coaches, assistant coaches or team mentors participated in the coach survey. 32 volunteers, Local Judges, or Judges participated in the volunteer survey. Table 1 shows the satisfaction rate from each survey. Figure 1 displays the table data in a 3D bar graph. There was one "dissatisfied" response out of 63 this year.

	# Coaches	# Volunteers	Weighted Average %
Very Satisfied	13	20	52.4%
Satisfied	15	10	39.7%
Neutral	3	1	6.3%
Dissatisfied	0	1	1.6%
Very Dissatisfied	0	0	0.0%

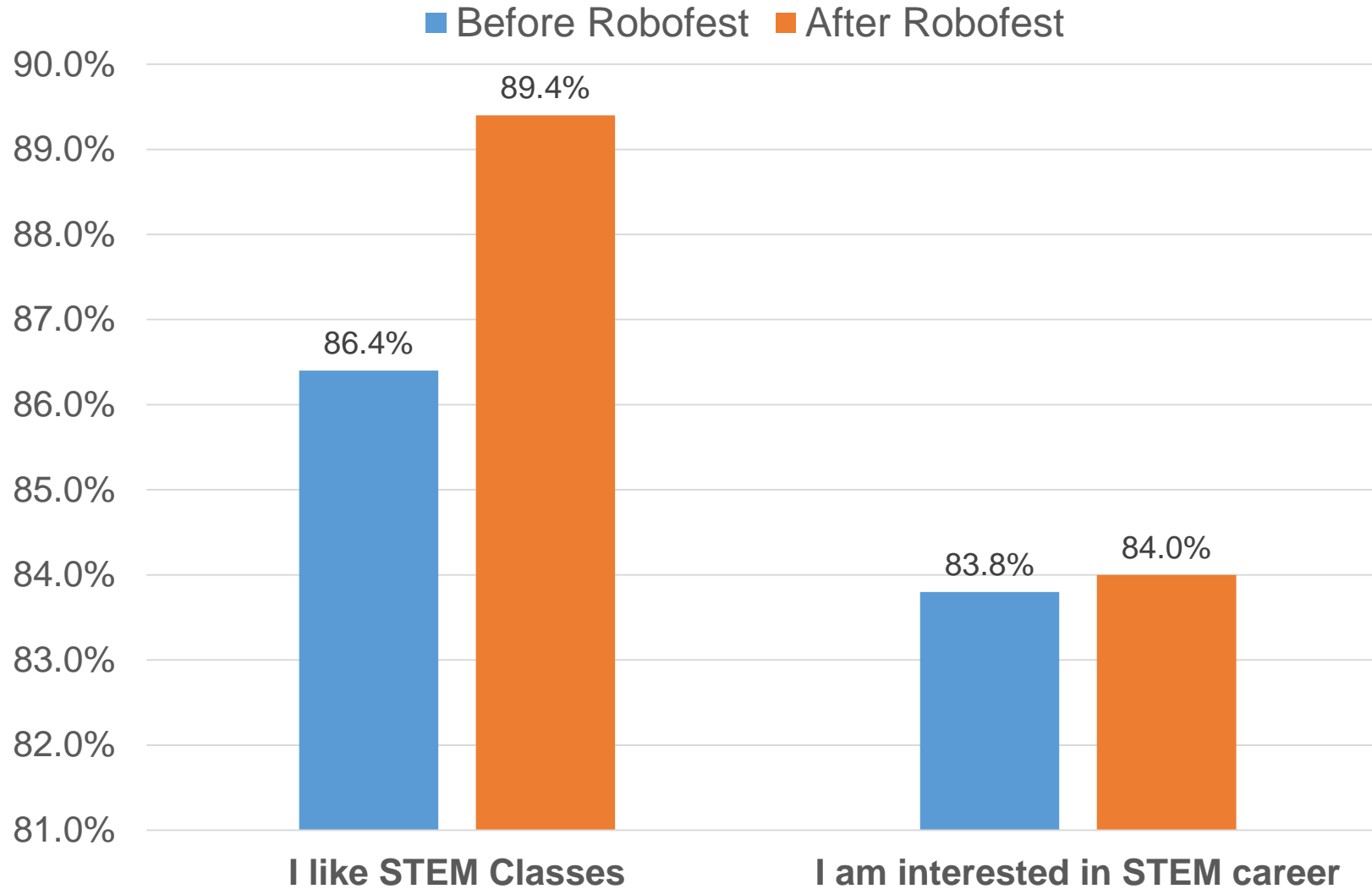
(Table 1) 2023 Satisfaction rate from each of 2 surveys

Figure 2 shows average satisfaction rate from the 2 surveys. 92.1% (52.4%+39.7%) were satisfied or very satisfied. Considering that, Robofest 2023 was yet another successful year. Figure 3 shows overall coach/volunteer satisfaction rate changes since 2013. It does not show neutral cases.

Coach/Volunteer Satisfaction Rates

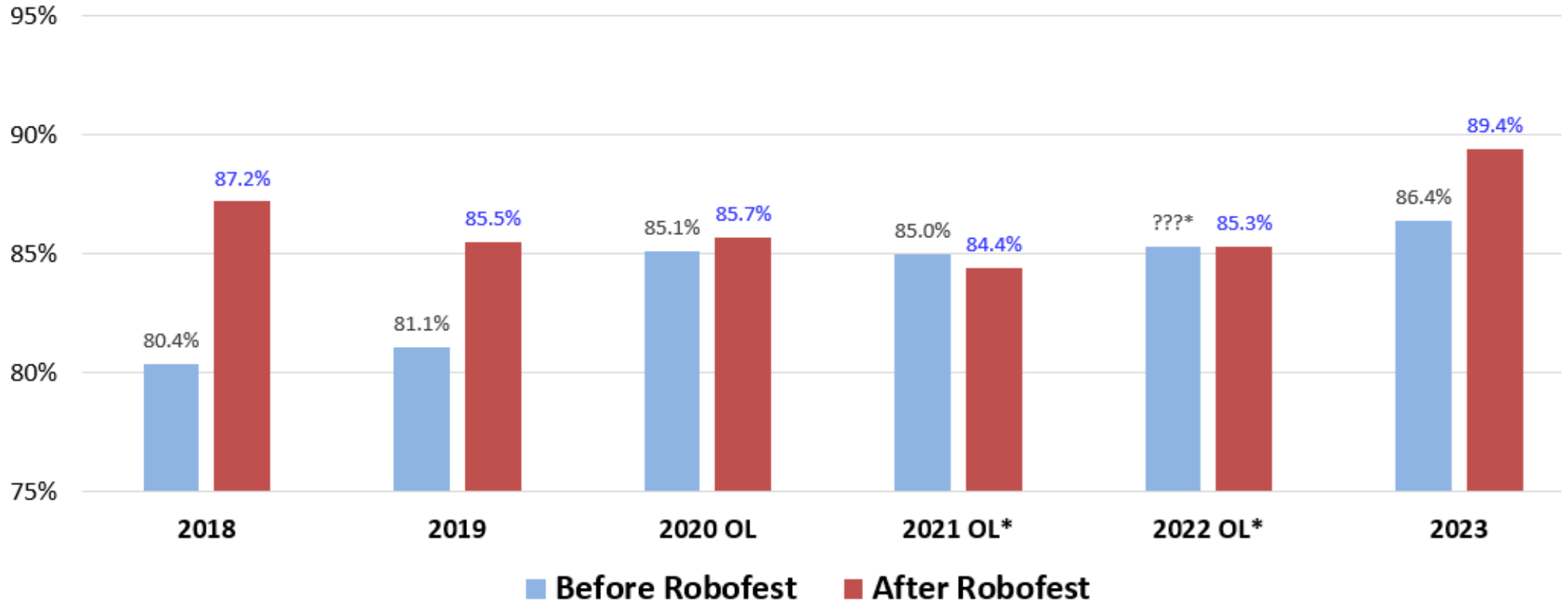


Pre & Post Student Assessment Summary



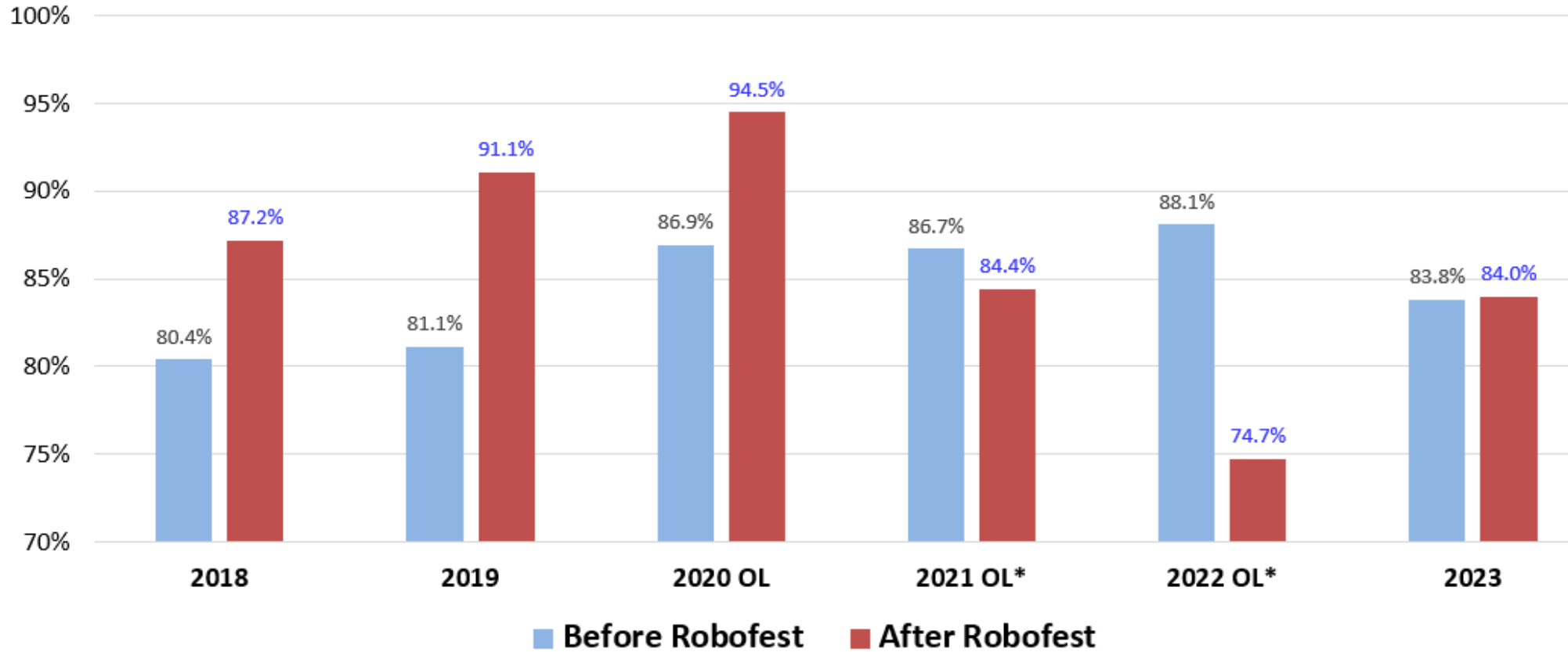
STEM Likert Scale

Q4. I like STEM & Coding classes



STEM Career Interest

Q5. Interested in STEM & Coding careers



Evaluation of 2023 year for each quantifiable criteria

9/12 = 75%

Metric #	Criteria	Goal	Outcome	Evaluation
1)	Total number of registered teams	> 500	593	Successful
2)	Dropout rate	< 5%	11.11%	Unsuccessful
3)	% of Game teams with over 60% scores	> 30%	31.38%	Successful
4)	% of Exhibition teams with over 3.0	> 50%	80.0%	Successful
5)	% of Game teams that solved unknown task	> 40%	42.11%	Successful
6)	Overall coach & volunteer satisfaction rate	> 80%	92.1%	Successful
7)	% of Game teams that tried 2 nd Chance before the World Championship	> 20%	4.76%	Unsuccessful
8)	% of Game teams that improved scores on average in the 2nd chance competition. Video submission teams included.	> 60%	67%	Successful
9)	% of students who indicate that Robofest experience helped them learn more about STEM	> 80%	86.6%	Successful
10)	Increased % of students who like STEM classes after having Robofest experience	> 3%	3%	Successful
11)	Increased % of students who consider a career involving STEM after their Robofest exposure	> 3%	0.2%	Unsuccessful
12)	% of coaches who indicate that Robofest experience helped students in learning essential skills such as teamwork, creativity, leadership, communication & problem solving	> 60%	87.1% (based on Coach survey, Q4)	Successful

2023-24 Goals/Strategies

- **Recruitment**

- Reach out to more high school students in S.E. Michigan
- Host hands-on Saturday competitions/workshops for H.S. students in the fall
- Conduct Intro to C class with robots for dual enrollment & early middle college students
- Offer co-op and robotics project classes for early college middle students
- Number of registered students: 2,500 (Pre-pandemic level)

- **Improving Quality**

- Technical Committee for each competition category
- AI, Math, Physics

8 Technical Committees

- Game
- UMC
- Vcc
- BottleSumo
- Exhibition
- RoboMed
- RoboArts
- RoboParade

Major Roles

- Define/design/refine rules including rubrics
- Qualifying competition judging if available
- 25th World Championship 2024 Judging, May 2024

Technical Committee Member Qualifications

- Must have professional background in robotics and/or robotics competition experiences
- Short bio will be posted online
- Be available as Judges for World Championship in May 2024
- Be available for monthly in-person or Zoom meeting
- No conflict of interest
- Please sign up today!

99h Robotics Competition Grant



- Robofest is now an official program provider on the Michigan Department of Education 99h Robotics Competition Grant
- Grant is “intended to increase the number of pupils demonstrating proficiency in science and mathematics... and to increase the number of pupils who are college- and career-ready upon HS Graduation”
- Funding available for Public School Districts, Intermediate School Districts, and Nonpublic Schools to participate in Robofest
- Public Districts must agree to pay at least 25 percent of the cost of the Robotics competition program

99h Robotics Competition Grant

Maximum Team grant for Registration Fees, equipment costs, travel...

<p>Game Qualifier Rookie: \$1,000 Veteran: \$500</p>	<p>Exhibition Qualifier Rookie: \$1,200 Veteran: \$800</p>
<p>Open Categories - RoboParade, RoboArts and RoboMed: Rookie: \$1,200 Veteran: \$800</p>	<p>Open Categories - BottleSumo and Unknown Mission Challenge: Rookie: \$800 Veteran: \$200</p>

99h Robotics Competition Grant



- Coach Stipend: \$1,000 for Jr Division, \$1,500 for Sr Division
- State Continuing Education Clock Hours (SCECH) can be earned by coaches, assistant coaches and team mentors for time spent coaching teams (not including time at competitions) (1 SCECH per 10 hours)
- Program RFP will be completed on September 8
- Teams must be registered in the Robofest system between October 1 and October 31, 2023 (pre-registration available)

LTU Robofest Scholarship

- Robofest team members who choose to attend Lawrence Technological University for any major field of study may apply
- \$3,000 annual renewable scholarship (total of \$12,000)
- Apply to LTU
- Submit an application and essay located on the LTU website: <https://www.ltu.edu/financial-aid/scholarships-freshmen> under “Other LTU Scholarships”
- Submission Deadline: April 1st

LTU Robofest World Champion Scholarship

- **New in 2023** - Members of World Champion First Place Sr Game, Sr Exhibition, Sr RoboArts and Sr RoboMed teams are awarded the Robofest World Champion LTU Scholarship certificate in the amount of a \$17,000 annual scholarship
- Students receiving this scholarship must enroll at LTU the same year as their High School graduation, and must meet LTU admission criteria and scholarship criteria of High School GPA of 3.0 or better
- This Scholarship is renewable each year provided the student is enrolled for at least 12 credit hours each semester and maintains at least a 3.0 GPA

Important Dates (Tentative)

- **Release International General and Category Rules:**
Saturday, September 30, 2023
- **Kickoff Meetings:**
Friday, October 6, 2023: 9:00 am ~ 10:30 am – Zoom Only
Thursday, November 2, 2023: 7:00pm ~ 8:30pm – Local and Zoom
Saturday, January 13, 2024: 10:00 am ~ 11:30 pm – Local and Zoom
- **2024 World Championship Events:**
Thursday, May 9 – Open Categories
Friday, May 10 – Open Categories
Saturday, May 11 – Game and Exhibition Finals, RoboArts

International Robot Olympiad in Greece

- The 25th IRO 2023 will be held in January from 16th to 20th, 2024 in Athens, Greece
 - Exhibition
 - UMC
 - robot soccer
 - various games
- Interested in participating?



