

Encouraging STEM careers to rebuild a post COVID-19 world

EurAsia Burgos University 2022

07/03/2022

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EU Member States shared the **urgency of addressing young people's lack of interest for science and technology**, the need to **attract more of them to science and technology careers** and to equip all young people with the skills and knowledge needed by future responsible innovators/researchers and **“science-active” citizens**.

[Scientix: The Community for science education in Europe, EUROPEAN COMMISSION, Directorate-General for Research and Innovation (2011)]

STEM occupations are projected to **grow over two times faster** than the total for all occupations **in the next decade**.

The U.S. Bureau of Labor Statistics (BLS) 2019–29 employment projections show that **occupations in the STEM field are expected to grow 8.0 percent by 2029**, compared with 3.7 percent for all occupations.

[U.S. Bureau of Labor Statistics. EMPLOYMENT & UNEMPLOYMENT- January 2021 | Vol. 10 / No. 1]

THE GLOBAL STEM PARADOX

As more STEM students graduate, **millions of STEM jobs in both developed and emerging countries are going unfilled.**

FOUR REASONS, IN PARTICULAR, ACCOUNT FOR THIS PARADOX:

1st: Shortage of Graduates with **Soft Skills.**

Kramer, Mark R., Kate Tallant, Amanda Oudin Goldberger, and Flynn Lebus. "The Global STEM Paradox." Report, FSG, 2015.



DRUGS

SUNDAY
MONDAY
TUESDAY

Part of the Solution



N **E** **V** **E** **R** **S** **T** **O** **P** **L** **E** **A** **R** **N** **I** **N** **G**

An Educational Initiative



What is FLL?



Available at: <https://www.youtube.com/watch?v=t3bUaZAwwiA>

FIRST Foundation
+
LEGO Group



What's FIRST®?

...the No. 1 youth-serving non-profit advancing STEM education outcomes and the development of 21st century skills.



...a transformative movement.

- Bridging the STEM skills gap
 - The only sport where every kid can “go pro”.
 - Increasing STEM competence and confidence in young people while creating career opportunities and innovation in the fastest-growing fields.
- *More Than Robots*
 - Inspiring young people to develop a lifelong love of learning in an ever-changing workforce and society.
 - Equipping students with real-world skills, including digital literacy, teamwork, leadership, creative problem solving, and time/project management.
- Building the people who will change the world – today and tomorrow
 - Helping students channel their raw curiosity, think critically, and seek ways to improve the world around them.



2018-2019 Numbers at a Glance

570K+

students in
100+ countries

300K

mentor, coach, judge,
and volunteer roles

20M+

volunteer hours
served

\$80M+

scholarship opportunities from
nearly 200 providers

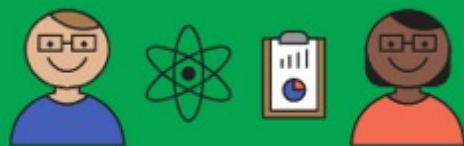
3,600

events in
100+ countries

77K

participants at annual *FIRST*
Championship

Substantial Increase in STEM **INTEREST**



FIRST® participants are
**SIGNIFICANTLY
MORE LIKELY** to
show gains in interest in:

- ✓ STEM
- ✓ STEM CAREERS
- ✓ UNDERSTANDING OF STEM

(than a matched comparison group of students)

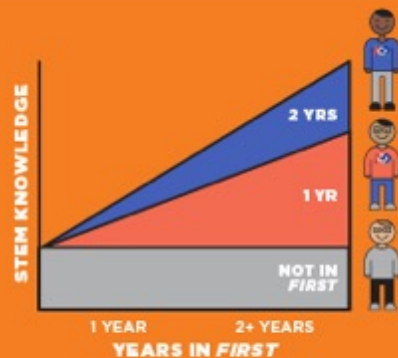


**THEY ARE
OVER
2X**

**as likely to show gains
in their interest of STEM**

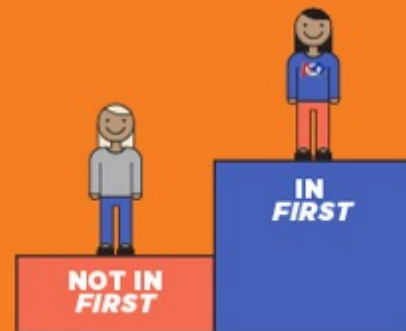
(than a matched comparison group of students)

Substantial Increase in STEM **UNDERSTANDING**



**STEM KNOWLEDGE CONTINUES TO
GROW THE LONGER YOU STAY**

Students who persist in *FIRST* for more than one year show significantly greater gains than those who left after a single year.

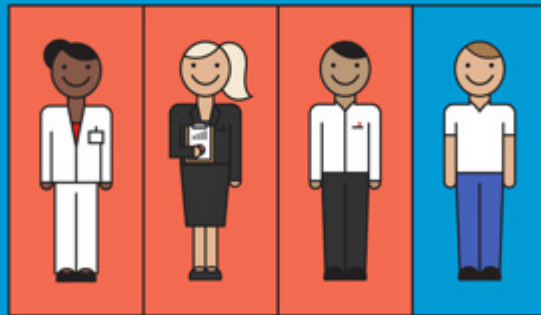
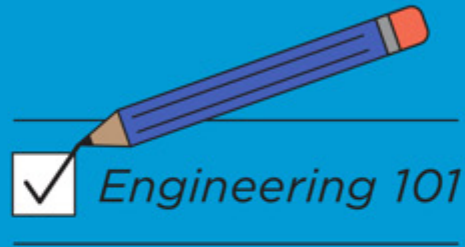


**THE IMPACT ON GIRLS
IS SIGNIFICANT**

Females in *FIRST* have a dramatically increased understanding of STEM compared to females in the comparison group.

FIRST Alumni Are Ready for a STEM
CAREER

FIRST ALUMNI ARE
2.6x
more likely to enroll in an
ENGINEERING
course their freshman year
(than a matched comparison group of students)



**OVER
75%**
of FIRST Alumni are in a
**STEM FIELD AS
A STUDENT OR
PROFESSIONAL**

**GAINS IN
WORKFORCE
SKILLS:**



FLL. Divisions

**FIRST
LEGO
LEAGUE**
DISCOVER

AGES
4-6



This playful introductory STEM program ignites young students' natural curiosity and builds their habits of learning with hands-on activities in the classroom and at home using LEGO® DUPLO® bricks.

**FIRST
LEGO
LEAGUE**
EXPLORE

AGES
6-10



In Explore, teams of students ages 6-10 focus on the fundamentals of engineering as they explore real-world problems, learn to design, and code, and create unique solutions made with LEGO bricks and powered by LEGO® Education WeDo 2.0.

**FIRST
LEGO
LEAGUE**
CHALLENGE

AGES
9-16



Friendly competition is at the heart of Challenge, as teams of students ages 9-16* engage in research, problem-solving, coding, and engineering - building and programming a LEGO robot that navigates the missions of a robot game.

FLL Challenge. More details



Available at: <https://www.youtube.com/watch?v=kkN08bDv9EI>

Dimensions of FLL

Core Values



Robot Game

Research Project

FLL Core Values



- The FIRST Core Values distinguish FLL from other programs of its kind.
- By embracing the Core Values, participants learn that **friendly competition and mutual gain are not separate goals**, and that helping one another is the foundation of teamwork.
- The FIRST philosophies of Gracious Professionalism[®] and Coopertition[®] are expressed through our Core Values.



Every year, FLL releases a new Challenge based on a real-world, scientific theme.





FLL Challenge teams prepare all season to compete at **regional tournaments**, where judges provide **valuable feedback on their robot, code, and invention.**

The final test of their work comes at **the Robot Game** table, where they race against the clock for a personal best score.

Did we mention Soft Skills?



Available at: <https://www.youtube.com/watch?v=9XtUIQULRvA>

FLL Burgos is approaching



Next Saturday (March, 12th): face to face
More information at: <http://www.ubu.es/fll>



War is not the answer...

STEM could be in many cases!

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