

# Report 2022-2023



## Report 2022-2023

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## Message from our CEO

The key challenge in 21st century education is to generate active, conscious and innovative teaching, where children and adolescents feel emotionally involved and motivated to learn and discover new things.

Now that the educational community has been forced to innovate due to COVID pandemic, the challenge has arisen of how to update to models with greater student participation and motivation. Instructing students to only memorize information does not address current needs; It is essential to train children to be capable of reflecting, questioning, experimenting and enjoying the learning process.

In this regard, at RobotiX Group, we seek to promote programs that transform education and motivate students to be agents of change and participate in the construction of a better world through Play, Robotics and STEM.

The aim of this report is to show everything we achieved together with our allies and donors during the 2022-2023 school year. We are very grateful to each and everyone who has joined our cause!

Roberto Saint Martin | CEO







At **RobotiX Group** we are committed to transform and promote education through Play, Robotics and STEM, so that children and youth in Mexico and Latin America develop new skills, and obtain the necessary tools to have a better present and future.

**RobotiX Group**, is formed by two organizations: **RobotiX**, is the organization that began teaching robotics courses to mechatronic engineering students, and which later led to teaching robotics to children from private schools, and **RobotiX Foundation**, later emerged as a response to ensure that these opportunities reach public schools and community centers where budget was a major barrier.

Through our **RobotiX Foundation**, we have focused on ensuring that low-income children and adolescents from vulnerable groups gain and maintain access to STEM educational programs, through alliances with socially responsible companies, governments and civil associations.

# It is not about a lack of talent but a lack of opportunities.

## 17 years detonating change

#### 2015

We work jointly with the Secretariat of Communications and Transport to implement the network Punto México Conectado nationwide.

# 2016

We released RobotiX in the Box, an educational program that allowed Public Schools to incorporate Robotics and STEAM in their curriculum. PIPE-CIDE did a research through a pilot test in Mexico City to validate the impact of the program in Primary and Secondary schools.



Our Programs were selected by the Secretariat of Public Education at local and federal levels as part of the Official Curriculum Autonomy solutions. The Programs were implemented in over 1,100 schools in Mexico City, Sonora and Campeche, and impacted over 160,000 students.



## **Promoting STEM**

STEM has an applied and interdisciplinary approach that is coupled with problem-based learning.

Students who train in STEM become professionals who not only stand out for being innovators and critical thinkers, they are also students capable of making meaningful connections between the educational institution, the community, work and global problems.

In an increasingly globalized and complex world, where success lies not only in what is known, but in what can be done with that knowledge. Today more than ever it is essential that young people have the knowledge and skills needed to solve complex problems, gather and evaluate evidence, and make sense from information.

# There are great opportunity areas for new generations:

In the world there are more than 6 million of vacancies in STEM (3 to 1 in STEM vs. 1 to 6 in Construction)

Mexico is experiencing a relevant moment of economic development with *nearshoring* 



Science Explore, know, experiment

Engineering

Build, test, iterate

Technology Programming, innovate, improve



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Arts Communicate, empathise, social impact

Mathematics Measure, calculate, optimize

Results report | 2022-2023 5

# We promote two programs nationwide:



### **STEM for all**

1.1 *FIRST* LEGO League1.2 RobotiX in the Box1.3 Learning Solar Lab

2

# Playful Pedagogy

2.1 Pedagogy and play

Aligned to:

# SUSTAINABLE DEVELOPMENT G ALS





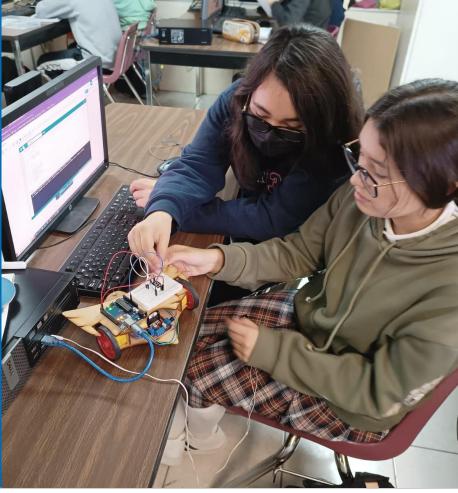
# Program STEM for all

Results 2022-2023

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Through this strategy, we promote access to STEM programs for students ages 4 and 18 in public schools and community centers.

For all schools, RobotiX Foundation provided materials, training and strategic monitoring with teachers and administrators.

We also host regional and national events to shape the culture around STEM promotion and interest.

The success of this strategy is not only related to helping schools transition to quality STEM activities and learning, but also to connecting those needs with local, state and federal public policy, private organizations, donors and a whole harmonious national educational system.



#### Each school receives:



Base equipment for a STEM classroom



Educational material for the school year

Annual training for educational figures



School, regional and national fairs and events

School network

monitoring

We promote implementation and continuity through programs:





# **STEM for all General scope**





educational institutions participated in our programs



85.37%

of the participating institutions were benefited



65,804 impacted

students

of the impacted students were girls

49.57%



11,209

equivalent in number of teams



214,494

Indirectly impacted students



1,471

impacted teachers



## Scope breakdown of each program

#	Program	Beneficiary educational institutions	Educational institutions reached	Directly impacted students	Equivalent in number of teams	% of girls	Indirectly impacted students	Impacted teachers
1	FIRST LEGO League Challenge	362	453	21,654	2,707	49.71%	105,777	462
2	FIRST LEGO League Explore	225	266	23,212	4,642	49.87%	63,716	457
3	FIRST LEGO League Discover	183	192	15,441	3,860	49.97%	25,871	494
	Full scope of FLL in Mexico:	770	911	60,307	11,209	49.84%	195,364	1,413
4	RobotiX in the Box	51	51	4,213		46.14%	17,760	58
5	Solar Lab San Mateo Atenco	1	1	438		49.8%	190	1
6	Solar Lab Ecatepec	1	1	846		46.9%	1,180	1
• • •	Full scope of STEAM for All :	823	964	65,804		49.57%	214,494	1,471

We achieve an **74.22%** increase in the impacted students compared to 21-22!





## Growth in schools through years

	16-17	17-18	18-19	19-20	20-21	21-22	22-23
Benefited Schools and learning centers	22	103	181	322	400	462	823
Self-sufficient schools and Learning Centers.			81	141	66	112	141
Schools and Learning Centers sustained by public budget.	765	828	181	70	34	30	233
Total of impacted Learning Centers	787	931	443	533	500	604	964





*FIRST* LEGO League introduces Science, Technology, Engineering, Art and Mathematics (STEAM) to students ages 4 to 16 through play, fun and hands-on learning. Participants acquire real problem-solving skills through guided programs that allow students and teachers to build a better future here and now.

Since the 2018-19 season, RobotiX Foundation was selected as an Operational Partner of the *FIRST* LEGO League in Mexico. Since then, our foundation began to receive grants to implement *FIRST* LEGO League programs in different schools and community centers in different regions all over the country.

During the 2022-2023 school year, SUPERPOWERED Season, we managed to increase the number of teams and schools in Mexico: **911 institutions** were part of the program. Therefore we managed to impact 60,307 students.

Of the 911 institutions, 84.52% were benefited in collaboration with our donor network.

#### This program is divided into three categories:





#### 22-23 Season

During this season, students explored where energy comes from, how it is distributed, stored and used. They used their creativity to work to innovate for a better future regarding energy.









911

educational institutions were part of the program





of the participating institutions were benefited



60,307

impacted students



**49.84%** 

of the impacted students were girls



1,413 impacted teachers







# We held **14 events** in different regions of Mexico



11 teams were selected to represent Mexico in the 5 international *FIRST* LEGO League events.











# **ROBOTIX**® In the **box**

Since the 2016-17 season, RobotiX Foundation implemented this program through a pilot test with the Education Authority of Mexico City (AEFCM) with 15 primary and secondary schools. The program saw rapid growth in the number of schools implementing it as a result of the government's interest in scaling robotics and STEM in the public education system from 2017 to 2018, when a new federal administration office was inaugurated.

COVID pandemic was also a major disruptor of this program and the ability of public schools to prioritize robotics and STEM over math and other contents in this context...

During the 2022-2023 school year, we managed to benefit 51 schools, in collaboration with our network of donors, impacting 4,213 students (directly) and 17,760 students (indirectly).

#### Impact during the 2022-2023:



51





4,213 educational impacted institutions were students part of the program

58 impacted teachers









At the end of the school year, all schools that were part of the RobotiX in the Box program, were invited to participate in the **RobotiX FAIRE event**, where they presented innovative projects.

The RobotiX FAIRE is a coexistence STEM Fair that combines technology, fun and learning to bring children and young people from all over the country experiences that allow them to develop skills for their present and future.



**4** *(* best projects in the country



+150 participants



1st Place in the 2023 edition Project: Automated irrigation system Justo Zamudio Vargas High School | San Luis Potosí

Automation within a garden facilitates the irrigation of plants by reducing the amount of water used and avoiding human intervention. At the same time, this system supports the family economy by planting different types of plants for their consumption.





Since the 2018-19 season, RobotiX Foundation implemented this program in collaboration with Computer Aid (United Kingdom) and with DELL Mexico as the main donor, to operate learning centers where students could be benefited from robotics, IT and other educational programs.

A first Solar Lab was built in San Mateo Atenco, a community 15 minutes from Toluca in the State of Mexico to benefit the marginalized population in 2018. During 2019, a second Solar Lab was built in Ecatepec, also in the State of Mexico.

During the 22-23 school year, different activities will be provided for the community:



Robotics and computing



Support to users in online personal procedures.



Workshops for teachers







Solar Lab of San Mateo Atenco Estado de México School "Benito Juárez"







49.8% of the participants were girls



Solar Lab of Ecatepec Estado de México School "Profesor Roberto Ruiz Llanos"



846 students participated in the courses



of the participants



# STEM for all program was possible thanks to:





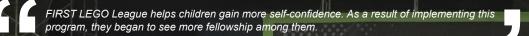


With FIRST LEGO League, children were able to investigate about solar energy. In our community electricity fails a lot and children discovered how solar energy could be used in a better way in our community.

> Ricardo Daniel Chávez Allende Teacher and coach of Star Kids team



Tepoztlán, Morelos



FIRST.

.EGO .EAGUE

Julieta Nohemí Jove Hernández Teacher and coach of DEAF-BOTS team





Torreón, Coahuila



# Program Playful pedagogies Results 2022-2023

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To advocate for the empowerment of children and young people, it is imperative to influence pedagogies and systemic change in the country. As a result of the RobotiX Foundation's trajectory and with the responsibilities and opportunities that come with working together with more than 30 municipalities and states in Mexico, we decided to be more active promoters of Playful Pedagogies since the 2020-21 school year.

In collaboration with LEGO Operations of Mexico and the LEGO Foundation, we have implemented programs to promote Learning through Play and Project based Learning (PBL).

# The LEGO Foundation





©The LEGO Foundation





In 2021, the LEGO Mexico Foundation developed a workshop to promote "Learning through play in preschool" within public education. The workshop had an excellent reception from the teachers, prompting the LEGO Foundation to plan its continuation.

After the success generated, the LEGO Mexico Foundation invited the RobotiX Foundation to be the creator of a new workshop and be part of the Pedagogy and Play collection: Workshops to strengthen professional teaching practice.

The collection is made up of four workshops developed by different organizations:



The objective of the "**Project Based Learning through Play**" workshop is to present the basic principles of the Project Based Learning (PBL) methodology to enrich life in the classroom through the development of autonomy, co-responsibility, inclusion and play. This workshop will serve to strengthen teaching practice, promote motivation and creativity of students and generate impact in the educational field.

#### What does the workshop include?

- Duration: 20 hours of theoretical-practical content
- **Materials:** Videos, Learning Guide, Resources with activities and Microsite
- **Profiles targeted:** Preschool and primary school teachers, preschool and primary school directors and supervisors.
- Modality: Virtual and self-managed
- **Free:** Accessible and free workshops for the educational community.



#### Main activities during the 2022-2023 school year:



A **microsite** was created. This site functions as a repository of tools so that teachers have free access to the Project Based Learning through play workshop. It also includes a Learning Guide, 7 videos and a toolbox with activities, assessments and extra resources.

#### https://fundacionrobotix.org/abp/



In May a **workshop** was designed and implemented. The aim was to simulate how students can experience Project Based Learning through Play. The workshop took place at the **International Education Seminar** in the state of Nayarit, Mexico and was directed to teachers and educational leaders.



A **conference** on the benefits of Playful Pedagogies and the Project Based Learning methodology was presented at the **International Education Seminar** in the state of Nayarit.





**On July 4, the official launch on social networks** of the Pedagogy and Play Collection took place, which included the Project Based Learning through Play workshop.

Formato de diseño ABP comienza Contextualización nistoria... 2) Grado Escolar: 1) Nivel escolar: encontrarás tu Formato de Diseño ABP con espaci pacio en donde podrás plasmar cómo te imagin 3) # de estudiantes: puedes utilizar diversas técnicas como recorte 8P, pega fotografias del proceso y muéstranos tu de tu grupo! (ilustra del punto 1 al 5). 4) Asignatura(s): 5) Asignatura transversal: 6) Objetivos de aprendizaje 7) Vinculación de aprendizajes con el mundo real: ollen en el proyecto y cuál

A general **evaluation format** was designed so that local governments could evaluate the Project Based Learning through Play workshop. Contraction PROCEP Encuentes Transparencia Comité Nacional

0080000

#### Dirección General de Formación Continua a Docentes y Directivos

Somos la instancia de la Sacotaria de Educación Pública encargada de normar y orientar la formación hacia el desarrollo protocional del personal de educación básica, con el fin de impulsar la mejora continua de su desempeño, de acuerdo con las exigencias de los retos nacionales globales.

#### Sala de Maestras y Maestros

La sala de maestras y maestros es un espacio para:

 Compartir con todo el personal docente recursos e información, en diferentes formatos, de apoyo a la formación continua.
 Publicar experiencias, materiales, ideas, vivencias, sentires y pensanes que las maestras y los maestros comparten con sus pares, par encipacent la labor docente.

 Facilitar la consulta de un catálogo de recursos didácticos para el desarrolto profesional docente que pueden ser de utilidad, tanto para el rabajo diario de las maestras y los maestros, como para el diseño de los proyectos de enseñanza que hoy se demandan al profesorado.



On September 8, the Project Based Learning through Play workshop was accepted by the Institutional Portal of the General Directorate of Continuing Training for Teachers and Managers. This gave the workshop official validity at federal level.



# We work with **two focal points**:

a Gender equality

**b** Inclusion and diversity

Aligned to:

SUSTAINABLE DEVELOPMENT G ALS





# Focal point Gender equality

**Results 2022-2023** 





Aligned with UN Sustainable Development Goal #5, one of our main actions is to promote more and more girls and women teachers to be part of our programs.

Through different strategies, we have achieved that **49.57%** of our total beneficiaries during the 2022-2023 cycle are girls, this has largely been due to the implementation of the programs in a curricular manner.



49.57% as girls they were part of our programs



Additionally, within the RobotiX Foundation we promote:

- Leadership of girls and women in STEAM
- Use of non-sexist language, behaviors, attitudes, orientations and vocations
- In a creative and constant way, the approach of STEAM to girls, boys and teachers alike.



In our community, there are still families who think that because you are a woman you should only study until high school and then get married. But seeing them participate in this type of programs has changed the way of thinking of families, who realize that their daughters can achieve more.

Teacher Lucía Rodríguez Bilingual School "Emiliano Zapata" 

# Focal point Inclusion & diversity

# Results 2022-2023

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Within the benefited schools during the 2022-2023 school year, **1,678** students with a disability or special learning condition participed.

674	learning disorder
470	visual disability
372	intellectual disability
86	hearing impairment
76	motor disability

It was very motivating because this time we included girls and boys with disabilities and that led to a healthy coexistence between all the participants and they supported each other.

> Erisel Nucamendi Sánchez School "Jorge Tovilla Torres"





Within the benefited schools during the 2022-2023 cycle, we had the participation of 3,533 students from an indigenous community.



FIRST LEGO League program were taught in Chontal, Maya, Chól, Maya Mixteco, Otomí, Náhuatl y Tu´un Savi (Mixteco)

Maaya paalalo'obe' tu náajalto'ob u chíimpolalil Equipo Revelación ichil u keetil robootikáa LEGO

ABRAHAM B. TUN

Maaya xoknáal Carolina Cocom Dzip, táaka'an ichil u muuch'il U Muuk' iik', ti' u téesekundaaryail Juana de Asbaie, tu kaajil Ekpedz, Tixcacalcupul, jach ki'imak u vóol tumen u najil xooke tu náajaltaj u chíimpolalil Equipo Revelación, ichil u keetil FIRST LEGO Leagues México 2023, beeta'ab tu noj kaajil Ciudad de México, ba'ale' beyxan tumen úuchik u k'uchul tak te'elo' béeychaj u k'ajóoltik k'áak'náab véetel jáal ja', mix juntéen u yil ka'achij. mix xan jach náachchaja'an ka'ach ti' u kaajali'. Le 6 ti' marzo máaniko' maaya paalale' béevchaj u







beeta'ab tu noi najil xook

# Program Volunteering & mentoring Results 2022-2023



At RobotiX Foundation, we want to generate a close link between the donor companies and the schools impacted by our programs. Throughout the school year, we carry out different events where we invite employees to participate as volunteers.

#### Among the activities they carry out are:

- Participation as project evaluators or judges
- Team mentoring

Through these activities, students receive feedback on their projects, tips to improve their presentations, as well as effective communication strategies.

Additionally, through these initiatives, children are motivated, inspired, and have the opportunity to meet people who currently work in STEM areas.



20 volunteers were team mentors









## 5 profesores STEAM que están cambiando el juego en la ciencia

TECNOLOGÍA

Te presentamos 5 casos de profesores que se la rifan todos los días por romper brechas, promover el cambio γ la innovación tecnológica γ STEAM.





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5 HISTORIAS INSPIRADORAS DE PROFESORES STEAM QUE ESTÁN ROMPIENDO FRONTERAS. © Cortesía Fundación RobotiX

# Communication



## **Highlights**

Throughout the school year, we carry out different communication and dissemination activities through statements, interviews and social networks, with the aim of amplifying our messages.

#### For us it is very important:

- 1. Talk about the importance of Robotics, STEM and Play in the educational context..
- Disseminate success stories of teams and schools that have stood out in national and international events.
- Inspire more students and teachers to get closer to the world of STEM.
- 4. Motivate more organizations to join our movement.





481 impacts on the press during the 2022-2023 year +400,000 social media reach





# Financial

# statements

Results 2022-2023

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## Annual Report RobotiX Foundation

	Season	21-22			
Donations per project	Amount	%	Amount	%	$\Delta \%$
STEM for all	\$ 17,968,046	81%	\$ 23,120,117	72%	29%
FIRST LEGO League	\$ 15,811,135	71%	\$ 21,203,168	66%	34%
Solar Lab	\$ 1,120,343	5%	\$ 117,012	0%	-90%
RobotiX in the Box	\$ 1,036,568	5%	\$ 1,799,937	6%	74%
Playful pedagogies	\$ 4,260,507	19%	\$ 9,197,222	28%	116%
Learning through Play	\$ 2,493,695	11%	\$ -	0%	-100%
Project Based Learning	\$ 1,766,812	8%	\$ 9,197,222	28%	421%
Total donations (MXN)	\$ 22,228,553	100%	\$ 32,317,339	100%	45%
Exchange rate as of August 23 per year	\$20.35 USD to MXN		\$20.02 USD to M		N
Total expenses (USD)	\$ 1,092,312		\$ 1,614,253		48%



## Annual Report RobotiX Foundation

	21-2	22			
Expenses	Amount	%	Amount	%	$\Delta \%$
Materials	\$ 13,285,151	62%	\$ 15,646,804	50%	18%
Operational staff	\$ 3,188,163	15%	\$ 5,199,369	16%	63%
Logistics and distribution	\$ 1,878,931	9%	\$ 1,871,850	6%	0%
Curriculum Design Suppliers	\$ 1,020,698	5%	\$ 5,393,026	17%	428%
Competitions and equipment demonstrations	\$ 782,935	4%	\$ 1,557,775	5%	99%
Communication	\$ 431,537	2%	\$ 534,840	2%	24%
Overhead	\$ 879,021	4%	\$ 1,344,996	4%	53%
Total Expenses (MXN)	\$ 21,466,436	100%	\$ 31,548,660	100%	47%
Exchange rate as of August 23 per year	\$20.35 USD to MXN		\$20	).02 USD to MX	۲N
Total Expenses (USD)	\$ 1,054,862		\$ 1,575,857		49%



## Comparative Annual Operating Budget RobotiX Foundation

Project	Donations	%	Expenses	%	Remainder	∆%
Robotics and STEM	\$ 23,120,117	72%	\$ 22,351,439	69%	\$ 768,678	3%
FIRST LEGO League	\$ 21,203,168	66%	\$ 20,228,319	63%	\$ 974,849	5%
Solar Lab	\$ 117,012	0%	\$ 403,114	1%	\$ -286,102	-245%
RobotiX in the Box	\$ 1,799,937	6%	\$ 1,720,006	5%	\$ 79,931	4%
Playful pedagogies	\$ 9,197,222	28%	\$ 9,197,222	28%	\$ -	0%
Learning through Play	\$ -	0%	\$ -	0%	\$ -	0%
Project Based Learning	\$ 9,197,222	28%	\$ 9,197,222	28%	\$ -	0%
Total 22-23 (MXN)	\$ 32,317,339	100%	\$ 31,548,661	98%	\$ 768,678	2%
Total 21-22 (MXN)	\$ 22,228,553	100%	\$ 21,466,436	97%	\$ 762,117	3%
Growth	\$ 10,088,786	45%	\$ 10,082,225	47%	\$ 6,561	1%



## More about:

## fundacionrobotix.org



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