

Young Female Talent in Action: Women for a STEAM Future in El Salvador

Joven Talento Femenino en Acción: Mujeres por un Futuro STEAM en el Salvador

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Subdiscipline: STEAM education and technology.

Abstract


Technological and scientific advancement in today's world has generated a growing demand for professionals in the fields of Science, Technology, Engineering, Art, and Mathematics [STEAM]. However, many young people, especially women, face obstacles in exploring their potential in these disciplines, whether due to a lack of information, fear of failure, or gender stereotypes. Considering the need to provide adequate information for decision-making when choosing a career, this research shares a pedagogical proposal designed by Salvadoran institutions, promoted by the Ministry of Education, and sponsored by the Organization of Ibero-American States [OEI], whose purpose has been, from its inception, to inspire and motivate 8,000 high school female students to consider careers in STEAM as a life opportunity. Through a combination of practical information, inspiring testimonials, and thematic workshops, both in-person and online, a support project was designed and implemented, proposing strategies to understand that disciplines linked to science and technology not only offer stability and professional growth, but also allow for the solution of real problems and generate a positive impact on society. Throughout the program, participants can explore the multiple possibilities offered by STEAM careers, learn about success stories of professionals who have overcome obstacles, and discover tools and resources available to begin their journey in these areas. More importantly, they develop skills to overcome their fear of dreaming big and envision a future filled with opportunities in science, technology, and innovation.

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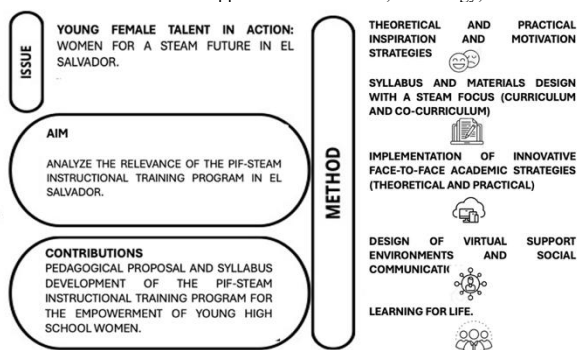
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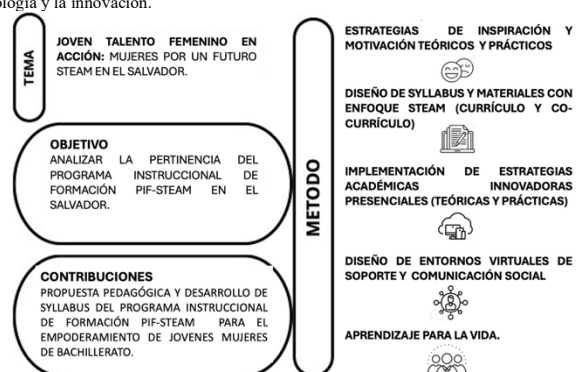


Resumen

El avance tecnológico y científico en el mundo actual, ha generado una creciente demanda de profesionales en las áreas de Ciencia, Tecnología, Ingeniería, Arte y Matemáticas [STEAM, por sus siglas en inglés]. Sin embargo, muchos jóvenes, especialmente mujeres, enfrentan obstáculos al explorar su potencial en estas disciplinas, ya sea por falta de información, miedo al fracaso o estereotipos de género. Tomando en cuenta la necesidad de proporcionar información adecuada para la toma de decisiones ante la elección de carrera, la presente investigación comparte una propuesta pedagógica diseñada por instituciones salvadoreñas, promovida por el Ministerio de Educación y auspiciada por la Organización de Estados Iberoamericanos [OEI] cuyo propósito ha sido desde su planteamiento inspirar y motivar a 8,000 mujeres estudiantes de educación media superior, a considerar carreras en STEAM como una oportunidad de vida. A través de una combinación de información práctica, testimonios inspiradores y talleres temáticos tanto presenciales como virtuales, se diseñó y llevó a cabo un proyecto de acompañamiento planteando estrategias para comprender que las disciplinas vinculadas con la ciencia y la tecnología no solo ofrecen estabilidad y crecimiento profesional, sino que también permiten resolver problemas reales y generar un impacto positivo en la sociedad. A lo largo del programa, las participantes tienen la oportunidad de explorar múltiples posibilidades que ofrecen las carreras STEAM, conocer historias de éxito de profesionales que han superado obstáculos y descubrir herramientas y recursos disponibles para iniciar su camino en estas áreas. Más importante aún, desarrollan habilidades para perder el miedo a soñar en grande y visualizar un futuro lleno de oportunidades en la ciencia, la tecnología y la innovación.



Pedagogical Innovation, STEAM, Methodology



Innovación Pedagógica, STEAM, Metodología

Area: Development of strategic leading-edge technologies and open innovation for social transformation

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Introduction

This article addresses the first of four segments developed during the research on the relevance, syllabus development, and implementation of the PIF-STEAM Instructional Training Program in El Salvador, led by the Universidad Salvadoreña Alberto Masferrer [USAM]. The main objective of this program is to promote the interest and active participation of young women at the high school level in the areas of Science, Technology, Engineering, Arts, and Mathematics [STEAM], in order to inspire and guide them in their choice of university careers, fostering inclusion, equity, and a culture of peace.

Through the design of a comprehensive empowerment program, the program seeks to strategically contribute to the development of participants' academic, work-related, and personal skills, strengthening their confidence and preparing them to face academic and professional challenges in the aforementioned fields.

With the intention of understanding the project in its proper dimension, it is worth mentioning that the four segments considered for the design, implementation, and analysis of results developed in the PIF-STEAM are:

- a. Pedagogical proposal and syllabus development of the PIF-STEAM Instructional Training Program.
- b. PIF-STEAM Implementation Plan.
- c. Analysis of the Secondary Education Curriculum as a basis for the development of the PIF-STEAM; and finally;
- d. The Learning Outcomes of the Pedagogical Proposal, implementation, and analysis of the PIF-STEAM.

As mentioned, this article addresses the challenges and strategies implemented for the design of the pedagogical proposal and the development of the syllabus content, outlined in the first segment of the PIF-STEAM Instructional Training Program, emphasis is placed on the importance of having tools that support students in their decision-making regarding pre-university study alternatives, promoting in-depth reflection on the implications of their choices, especially in relation to opportunities to access higher education in STEAM fields.

The hypothesis guiding the project is that, through the STEAM training program for young women, it is possible to stimulate interest in these fields and encourage continued studies in higher education, thus contributing to strengthening the National Higher Education System.

The innovative added value of the project lies in the support provided to students during the transition from secondary school to university. Through combined strategies—both in-person and virtual—participants are provided assistance and follow-up in the final stage of secondary education. This intervention seeks to reduce the training opportunity gap, which, depending on the context, can begin to manifest itself at an early age in schools and homes, affecting access to STEAM careers, labor market integration, and participation in research and development projects.

This article presents background on the origin of the proposal, describes the program's in-person and virtual components, the academic resources and materials used, the assessment strategies applied, and the methodological aspects that support the program's design and implementation.

Background

The research presented in this article arose from a call for proposals from the Organization of Ibero-American States for Education, Science, and Culture [OEI], the entity responsible for implementing all necessary actions for the proper execution of the project, ensuring strict compliance with the stipulated clauses, programs, schedules, deadlines, and costs, under the supervision of the National Directorate of Higher Education [DNES/MINEDUCYT] of El Salvador.

The OEI is the largest multilateral cooperation agency between Spanish- and Portuguese-speaking Ibero-American countries. With more than 3,000 staff members spread across 20 countries, its mission is to view education, science, and culture as essential tools for human development and generators of opportunities for a more inclusive and equitable future [OEI, 2024].

Within the framework of the agreement established between the State and Government of El Salvador—through the Ministry of Education, Science, and Technology [MINEDUCYT]—and the OEI, the objective was to design an instructional program in STEM areas aimed at young women, contributing to the strengthening of the National Higher Education System through the implementation of strategic actions aligned with the National Higher Education Policy.

After submitting the required tender and documents, the project was awarded to the Universidad Salvadoreña Masferreriana of El Salvador. The University certified its technical and professional competence before the Ministry of Education, Science, and Technology [MINEDUCYT] of El Salvador to meet the demand of 8,000 young people representing 200 classroom sections. In turn, USAM partnered with 15 Higher Education Institutions [HEIs] in the country, which, given the scale of the project, agreed to participate in the academic activities, providing physical infrastructure, technology, and management teams. Special mention should be made of the Higher School of Innovation and Technology, attached to the Secretariat of Innovation of the Presidency of El Salvador [ESIT], which is responsible for activities on the Moodle platform.

Box 1

Table 1

Salvadoran institutions participating in PIF-STEAM 2025.

Institutions
Alberto Masferrer Salvadoran University [USAM]
School of Innovation and Technology [ESIT]
Andrés Bello University [UNAB]
Technological University of El Salvador [UTEC]
Don Bosco University [UDB]
Central American Technological Institute [ITCA]
University of the East [UNIVO]
Catholic University of El Salvador [UNICAES]
University of Sonsonate [USO]
Evangelical University of El Salvador [UEES]
Francisco Gavidia University [UFG]
Specialized Institute of Higher Education [EMCGGB]
Specialized Institute of Higher Education [IEPROES]
Pedagogical University of El Salvador [UPED]
Key Institute El Salvador

The contract for the consultancy resulted in the design, implementation, monitoring, and evaluation of the instructional program, structured in both in-person and virtual modalities, with the goal of encouraging continued education toward higher education and motivating participants to pursue studies in STEAM fields.

Program Description

Currently, technological and scientific advancement has increased the demand for professionals in STEAM [Science, Technology, Engineering, Arts, and Mathematics] fields. However, many young people, especially women, face barriers that limit their access and participation in these disciplines, whether due to a lack of information, fear of failure, or the persistence of gender stereotypes [Acevedo, 2018; Alcibar et al., 2023].

According to data provided by the Ministry of Education, Science, and Technology [MINEDUCYT] of El Salvador, in 2018 the net educational enrollment rate at the higher education level was 11.89% for young people aged 18 to 24, while the gross enrollment rate reached 19.37%. The least in-demand programs continued to be those related to the sciences, such as Biology, Physics, Chemistry, and Mathematics [MINED Plan, 2018].

In the international context, UNESCO reports that women represent only 35% of students in STEAM fields at the higher education level [UNESCO, 2019]. The organization warns that these gender gaps limit opportunities for innovation and restrict new perspectives for addressing current and future challenges. It also emphasizes that lifelong learning and access to quality education for girls and women, aligned with scientific and technological advances, is a priority established in both the Beijing Platform for Action and the Sustainable Development Goals [UN Women, 2022].

In this context, the PIF-STEAM Instructional Training Program was specifically designed to inspire and motivate students, presenting it as a transformative opportunity.

Through a combination of practical information, inspiring stories, and dynamic activities, the program seeks to demonstrate that STEAM disciplines not only offer stability and professional growth, but also allow them to address real problems and generate a positive impact on society. For eight weeks, in-person sessions are facilitated by mentors who address STEAM-related topics through practical activities, encouraging exploration in various areas.

Thematic breaks are also offered to promote interaction among participants and strengthen support networks.

The program also features a Moodle platform that complements in-person activities, offering a virtual space called the "Virtual Cafeteria," where students, mentors, and family members can be connected, thus consolidating a comprehensive support network.

The program is designed to inspire and motivate students to consider STEAM careers as an opportunity for personal and professional transformation. Through a combination of relevant information, inspiring testimonials, and practical activities, the program seeks to demonstrate that scientific and technological disciplines not only offer stability and professional growth, but also provide the opportunity to address real-life problems and generate a positive impact on society.

Box 2

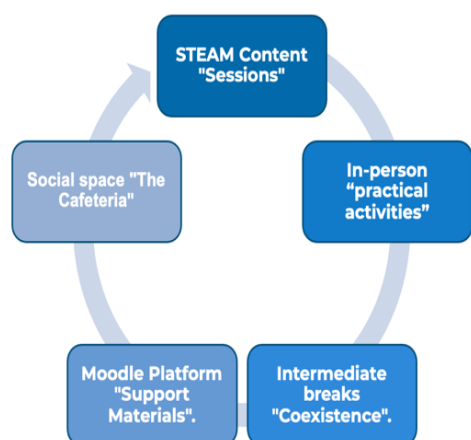


Figure 1

Program components

Own elaboration, 2025

Throughout the program, participants have the opportunity to explore the many possibilities offered by STEAM careers, learn about success stories from professionals who have overcome obstacles, and discover tools and resources available to help them begin their journey in these fields.

Program Modules and Virtual Platform

The design and implementation of a program aimed at encouraging and raising awareness among high school students about the opportunities available to access higher education, especially in STEAM fields, is a key strategy for strengthening the effectiveness of the National Higher Education System.

Throughout 16 in-person workshops, participants had the opportunity to explore knowledge through experimentation and practice, fostering the development of critical thinking geared toward solving real-world problems. Activities include engineering challenges, scientific research, programming and coding, simulations and modeling, as well as creative math and robotics competitions, as detailed in Table 2.

Box 3

Table 2

PIF-STEAM 2025 practical workshops.

WORKSHOP NAME
Practical Workshop 1: Group Integration Dynamics
Practical Workshop 2: Art and Culture in Science
Practical Workshop 3: Chemistry in Everyday Life
Practical Workshop 4: Opportunities Fair
Practical Workshop 5: Hard Skills
Practical Workshop 6: With All the Attitude
Practical Workshop 7: Guess My Job?
Practical Workshop 8: Extraordinary Women
Practical Workshop 9: Perspectives from the Industry
Practical Workshop 10: A Sustainable World
Practical Workshop 11: Exploring Cyberspace
Practical Workshop 12: Analyzing My Digital Footprint
Practical Workshop 13: Applied Engineering
Practical Workshop 14: Applied Mathematics
Practical Workshop 15: Applied Science
Practical Workshop 16: Applied Technology

To illustrate the interplay of actors involved in the program, Figure 2 presents the main actors, starting with the convening and managing bodies, university authorities, the curriculum design team, the administration and management team, and, of course, the mentors.

Special mention should be made of the coordinators and liaisons at each location, as well as those responsible for recruiting mentors, whose work is crucial to the program's success.

Box 4

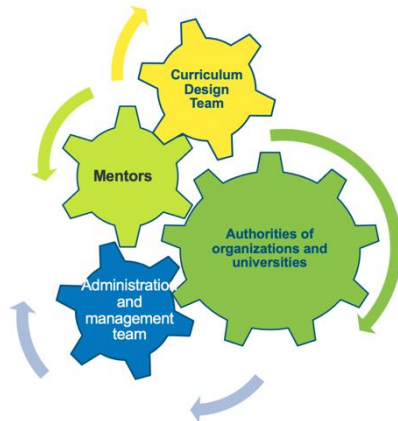


Figure 2

Actors involved

Own elaboration, 2025

The key areas addressed during the program's implementation are a) motivation and inspiration to dream big and break down cultural or gender barriers; b) support in visualizing a future with opportunities in innovation, science, and technology; and c) promoting the connection between STEAM disciplines, the ability to solve real problems, and generate positive social impact. Thus, this program has focused not only on informing but also on transforming perspectives and attitudes, preparing participants to embrace the potential that STEAM careers can offer on their path to professional and personal success.

The general content is illustrated in Figure 3.

In developing these, some challenges arose for the in-person sessions, such as: a) a large number of stakeholders involved, including participants, mentors, designers, and managers; b) addressing relevant groups and providing safe spaces, while maintaining a focus on female high school students within higher education institutions; c) working within a defined schedule and with specific, pre-allocated resources and a limited budget.

Box 5



Figure 3

Module Theme

Own elaboration, 2025

The topics for each module have been selected, and the supporting materials have been developed, and they are:

The topics for each module have been choose and the supporting materials have been developed, and they are:

Session 1: Introduction to STEM Careers: A Broader View

Session 2: Opportunities in the STEAM World

Session 3: Key Skills for Success in STEAM

Session 4: Inspiration Through Life Stories

Session 5: Challenges and Benefits of a Career in STEAM

Session 6: Resources and First Steps toward a STEAM Career

Session 7: Practical Activities in STEAM I

Session 8: Practical Activities in STEAM II

Regarding the practical workshops, these have been generally designed for mentors as an example of what can be done, but each location is free to propose the use and development of its specialties, considering its installed capacity.

Regarding the Virtual Classrooms, the implementation, monitoring, management, and hosting of content on the Platform was carried out through the Moodle platform, which was managed by the School of Innovation and Technology [ESIT]. ESIT was responsible for publishing the academic content for each planned session, facilitating access to the materials designed for use by mentors in each session, and supplementary study materials, as follows:

A) The training program is divided into modules according to the instructional design.

B] A single course was enabled on Moodle, in which all students were enrolled.

C] Program progress was recorded by unlocking sessions based on weekly sessions. The system will mark each week as complete if the student has consumed all resources.

D] Four identification roles were enabled at the system level: students; mentors; coordinators; administrators; and technical support, responsible for availability, participant lists, and platform passwords.

In addition to the reserved materials, practical virtual experiences were developed by areas of interest that are given in parallel to the face-to-face sessions starting in the third week. The contents have been organized in an agenda where each week the work is divided as shown in Figure 4:

Box 6

SCHEDUL	SCHEDULED ACTIVITY
9:00 a 9:15	Registration and Welcome
9:15 a 10:00	Mentoring Conferences
10:00 a 10:45	Practical Workshop I
10:45 a 11:00	Break
11:00 a 11:45	Mentoring Conferences
10:45 a 12:30	Practical Workshop II
12:30 a 12:45	Closing and Questions

Figure 4

Time organization

Own elaboration, 2025

Program Resources

The resources to be used in the program, both in-person and online, are:

- **Reading materials:** Documents, articles, and specialized books.
- **Moodle platform:** Virtual support classroom with complementary teaching resources, forums, and a cafeteria space for social interaction.
- **Specialized software:** Design, programming, and simulation tools.
- **Mentor network:** STEAM professionals ready to guide students.
- **Science and technology kits:** Materials for practical experiments.
- **Program agenda:** Details for 8 in-person weeks, plus 2 virtual weeks that will run parallel to the in-person weeks starting in the third week.

Finally, the program has been designed with a humanistic approach that seeks to train professionals capable of integrating technical knowledge with a deep understanding of human needs and values. This perspective promotes the development of technical skills alongside critical, reflective, and ethical competencies, thus fostering a more equitable and conscious society. Among the competencies promoted are interdisciplinarity, ethics and social responsibility, critical thinking, creativity and artistic expression, as well as inclusion and diversity [UNESCO, 2019].

Learning assessment system

The assessment system for this STEAM program is designed to be comprehensive and formative, fostering both individual and collaborative learning. Each module incorporates a variety of assessment methods to ensure deep understanding and practical application of concepts. Self-assessments invite personal reflection on progress and knowledge assimilation, while practical assessments allow participants to demonstrate their skills through the development of individual and team projects. Active participation is assessed by recording contributions in forums, debates, and group activities, promoting the exchange of ideas and teamwork.

In addition to verbal feedback provided by mentors, performance rubrics are used to provide a structured and transparent assessment based on specific criteria that reflect the learning objectives of each module. Feedback from mentors, experienced professionals in the STEAM field, offers constructive observations and personalized guidance, supporting skill development and continuous improvement. This multifaceted approach ensures that participants not only acquire theoretical knowledge but also develop practical skills and a critical mindset, preparing them for success in STEAM careers.

Methodology

The program is based on an active and interactive learning approach, combining theory with practical experiences to ensure effective student participation. The following strategies are used:

The project's specific stages, for the pedagogical proposal and syllabus development of the PIF-STEAM Instructional Training Program, considered the participation of a team of professionals in the multidisciplinary curriculum design as follows:

An international specialist in STEAM curriculum design and management, responsible for syllabus design during the program preparation, organization, and construction stages.

- Project coordinator: Methodology in learning assessment strategies and systems.
- Coordinator of strategy and logistical design of the consultancy.
- Coordinator of the materials development process and use of technologies.

To develop the construction process, a series of actions were carried out:

- A documentary research process that, in addition to theoretical aspects, delved into motivational aspects, competencies, scholarships, and information of particular interest.
- The project was designed, outlining the justification, objectives, and curriculum content.
- The training areas, materials design, simulators identification, assessment methods, and program resources were defined.

Within the methodology proposed from a pedagogical perspective, the following elements were identified to support the curriculum design:

- Project-based learning [PBL] proposal for the development of applied projects in each module.
- Design of strategies for collaborative work through group dynamics to strengthen teamwork.
- Identification of specialists and recordings of inspiring talks. Inviting STEAM experts to share experiences.
- Design of practical activities for applying concepts through workshops and exercises.
- Proposal for a formative assessment system to provide ongoing feedback through assignments and participation.

- Proposal and selection of digital tools, including the integration of the Moodle platform, to reinforce learning.

Results

Among the products generated from the process developed in the consultancy were:

1. The development of the work plan for the consultancy's execution and its schedule of activities.
2. An instructional program designed/adapted to STEM areas in a blended learning format, including sections on the development, implementation, monitoring, and evaluation strategy.
3. An analysis of the Natural Sciences, Mathematics, and Computer Science curricula for the General and Vocational Technical Baccalaureate to identify the students' level of study.
4. The STEM instructional program designed/adapted for an in-person phase, consisting of 40 hours, and with a 10-hour virtual component for practical training; a profile of the staff involved and program resources per module.
5. The Virtual Classroom in Moodle.
6. The Virtual Classroom Training Scripts.
7. The e-book with course materials.
8. The Workshop Scripts.
9. Academic articles on the pedagogical proposal and syllabus development; implementation plan: analysis of the secondary education curriculum in El Salvador; and lessons learned from the pedagogical proposal and the implementation of the PIF-STEAM.

Conclusions

In a global context where science, technology, engineering, art, and mathematics [STEAM] are consolidated as strategic pillars for development, it is essential to create educational programs that promote the participation of young women in these areas.

The initiative presented here, which in its first phase has benefited 8,000 high school students, represents not only an opportunity for technical learning, but also a transformative effort toward building a more equitable and just society.

It is no secret that historically, women have faced structural barriers that limit their access to STEAM careers, perpetuating gender gaps that impact both education and employment. Creating programs designed specifically for Salvadoran students not only seeks to equip them with technical knowledge, but also with critical tools that allow them to face the challenges of their country, challenging stereotypes, overcoming the fear of failure, and projecting themselves as future leaders in fields traditionally dominated by men.

The strategic combination of information, inspiration, and skills development has been conceived as a comprehensive approach that can trigger significant social transformations. Informing young women about the opportunities offered by higher education in STEAM is the first step toward breaking paradigms and broadening their professional horizons. Inspiring them through the stories of women who have excelled in these areas creates positive role models that reinforce their self-esteem and determination. Finally, developing technical and critical skills allows them to face the challenges of the 21st century, positioning them as agents of change with the ability to provide innovative solutions to global problems.

This initiative not only seeks to close the gender gap in STEAM fields but also promotes a culture of peace and social justice. By empowering thousands of young women to take on active roles in science and technology, it contributes to building a more inclusive, diverse, and conscious society, where talent and creativity are not conditioned by gender, but rather are enhanced by ability and perseverance.

It's clear that investing in STEAM education for young women in high school contributes to a future where equity, justice, and access to quality opportunities are the foundation for collective progress. This first stage is just the beginning of a path toward more inclusive education, where women's voices are elevated as a driving force for social transformation.

Declarations

The project leader is the Salvadoran University Alberto Masferrer, responsible for the general organization, both academic and logistical, responding to the express request of the Ministry of Education [MINEDUCYT] and supporting institutions stated in the recognition section, in compliance with its mission, which is to train professionals with academic excellence and human quality, providing them with a comprehensive education that prepares them to learn and share cutting-edge knowledge, contributing to the evolution of society, science, technology and culture, to new areas of development.

Conflict of Interest

The products resulting from the execution of this contract will be confidential and the exclusive property of MINEDUCYT.

Therefore, under no circumstances will the products constructed under this contract be delivered to unauthorized persons or used for purposes other than those described herein. In any case, the successful bidder will be liable for any damages arising from the breach of this obligation.

Furthermore, all products originating directly or indirectly within the framework of this consultancy and that may give rise to the creation of intellectual or industrial property rights will be the property of MINEDUCYT and may not be used without its express authorization.

Authors' Contribution

Juárez-Salomo, Norma Angélica: Syllabus Design in the Preparation, Organization, and Construction Stages of the Instructional Training Program in STEAM Areas for Female High School Students.

Esperanza Amaya, José Miguel: Methodology in Learning Assessment Strategies and Systems.

Silveyra-Rosales, Mariana Teresa: Contribution to the Syllabus Design in the Preparation Stages, Theoretical Foundations.

Article

Cuevas-Olascoaga, Miguel Ángel: Contribution to the Syllabus Design in the Preparation and Methodological Conception Stages.

Availability of materials and data

The project and resources have been delivered to MINEDUCYT and their use must have the express authorization of the indicated agency. Official Information: <https://www.transparencia.gob.sv/institutions/capres>

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Specialized Institute of Higher Education [IEPROES]

Pedagogical University of El Salvador [UPED]

Key Institute El Salvador

Abbreviations

PBL. Project-Based Learning.

MINEDUCYT. Ministry of Education, Science, and Technology.

OEI. Organization of Ibero-American States.

PIF. Instructional Training Program.

STEAM. Science, Technology, Engineering, Arts, and Mathematics [STEAM]

References**Basic**

Acevedo, M. [2018]. [Do stereotypes about STEM careers influence women's career choices? An exploratory study among young people from high-performing public schools in Mexico City \[Vol. 1\].](#)

Alcívar-Mendoza, M. Delgado-Mora, M. Daza-Angulo, M., & Domínguez-Chancay, D. [2023]. [STEAM methodology and interdisciplinarity: two allies in transformation.](#) FIPCAEC [Edition 39] Vol. 8, No. 4. October-December 2023, pp. 32-49.

OEI -Organization of Ibero-American States- [2024]. [Joint work among Ibero-American states is essential to achieve the goals.](#)

UN Women [2022]. [We need more women in STEM careers.](#) Latin America and the Caribbean.

UNESCO [2019]. [Cracking the Code: Girls' and Women's Education in Science, Technology, Engineering and Mathematics \[STEM\].](#) 19-20. Retrieved from

MINED, 2018. [Torogoz Plan: Institutional Strategic Plan.](#) Ministry of Education, Science and Technology 2019-2024. P. 38