Mentorship Handbook for Women in STEM Areas

DuocUC

Name of the project: "Latin American Network for Mentoring in favor of gender equality and opportunities in Science, Technology, Engineering and Mathematics areas"

Co-funded by UNESCO-UNEVOC Coaction Initiative 2023, Project ID 4500493108.
Head of the project: Instituto Profesional Duoc UC, Academic Vice Rectory, Community Engagement and Institutional Integration.

Technical Team:
Internationalization and Institutional Integration, Duoc UC

Duoc UC is responsible for the choice and presentation of the views contained in this handbook, as well as for the opinions expressed therein, which are not necessarily those of UNESCO and do not commit UNESCO.

This guide is also available in spanish and portuguese.

Translated into English and Portuguese by: Sebastián Espinoza E.

Participating Institutions:

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Institutions that participated in the project

INSTITUTO PROFESIONAL DUOC UC (Project Leader)

Duoc UC is a private, nonprofit professional institute founded in 1968 by the Pontificia Universidad Católica de Chile. As one of the largest higher education institutions in Chile, it serves over 108,000 students and offers a wide range of 70 technical and professional programs across 9 schools. The institution aims to provide high-quality education and practical skills and aims to equip students with the essential skills, knowledge, and attitudes necessary to excel in their professional and personal lives. Its model emphasizes practical, hands-on learning experiences and the development of competencies that are directly applicable to the workplace and broader society.

MINISTRY OF EDUCATION OF CHILE, Under-Secretariat of Higher Education, Division of Vocational Technical Education

The mission of the Division of Technical Vocational Education of the Under-Secretariat of Higher Education of the Ministry of Education in Chile is to improve and strengthen technical vocational education in the country. Its functions include developing policies and regulations, fostering collaboration with the productive sector, improving the quality of training, promoting access and equity, fostering innovation and modernisation, and providing information and monitoring on vocational technical education. All this with the aim of ensuring that this education is relevant, of high quality and accessible to all students.

CONIF (National Council of Institutions of the Federal Network of Vocational, Scientific and Technological Education)

The National Council of Institutions of the Federal Network of Professional, Scientific and Technological Education is made up of 41 institutions that are represented by the directors of each of them. It is a forum for discussion, proposal and promotion of policies for the development of vocational and technological training, research and innovation. The Council actively participates in the debate and defence of public, free and excellent education. Find out which institutions and councillors make up CONIF below.

INEFOP (National Institute for Employment and Vocational Training)

INEFOP is a non-state public law institution of tripartite integration: employers, workers and government. Its aim is to generate active employment and vocational training policies within the framework of an inclusive strategy that ensures the initial, continuous and efficient training of the workforce, facilitating the modernisation of the country's working life. One of its tasks and strategic guidelines is to deepen support for entrepreneurship through training, technical assistance, bank credit guarantees and financing.

PARAGUAYAN FOUNDATION

Fundación Paraguaya is a non-profit, non-governmental organisation whose objective is the development of innovative and sustainable solutions that promote the entrepreneurial potential of people in order to achieve a significant reduction in unemployment and poverty. It encourages people with limited resources to create sources of work and thus increase family income, promoting urban and rural entrepreneurship through interrelated strategies.

ILOILO SCIENCE AND TECHNOLOGY UNIVERSITY

Iloilo Science and Technology University (ISAT-U or ISAT) is a state research university located in La Paz, Iloilo City, Philippines. Founded in 1905 under the American colonial government of the Philippines, it is mandated and chartered as a polytechnical university by the Philippine government to provide undergraduate and graduate courses in different technological areas.

Executive summary

This Handbook is the result of a project funded through the UNESCO-UNEVOC Coaction Initiative 2023. The project's objective was to establish the Latin American Mentorship Network for Gender Equity and Opportunities in STEM (Science, Technology, Engineering, and Mathematics) in order to contribute to the region's efforts to promote inclusion and gender equity. STEM fields have historically been dominated by men in both the workforce and higher education, especially in technical vocational education and training (TVET).

This Network is composed of Duoc UC, Chile; the Ministry of Education, Chile; INEFOP, Uruguay; Fundación Paraguay, Paraguay; and CONIF, Brazil. Within its functions, the Network seeks to develop relevant material to promote mentorship as a measure to positively influence the educational and career paths of girls, adolescents, and young women who wish to enter STEM fields.

This volume is the first material released by this network, with the aim of making a significant contribution to the support and development of mentorship programs for both UNESCO-UNEVOC Centers and TVET and Training Institutions around the world, with a special focus on Latin America.

To develop this volume, a face-to-face working conference was held on November 14, 15, and 16, 2023, in Valparaíso, Chile, with the support of Dr. Virginia Snodgrass Rangel, a mentorship expert. During this conference, the critical issues related to the inclusion of women in historically male-dominated fields were addressed, and the different relevant aspects for initiating, maintaining, evaluating, and scaling mentorship programs were also discussed.

This project arises in response to the observation of an undeniable need for greater participation of women, who face a variety of barriers to entering and developing their careers, in STEM fields. Due to the low representation, they are underrepresented, and the management positions are largely occupied by men. Gender inequality is a problem for society from different perspectives since equality in the workplace is an essential requirement for a fairer and more equitable society.

In the field of education, gender segregation is reflected in the uneven distribution of genders in different academic programs, or in the concentration of genders in certain programs that define a "masculine" or "feminine" characteristic for certain professional careers. A career will be defined as "masculine" or "feminine" if one gender occupies more than 70% of the program. On the one hand, in secondary and higher education, men concentrate in engineering, manufacturing, and construction programs, where only 13% of graduates in OECD countries are women. On the other hand, in careers such as business, education, and health, women represent up to 75%. At this point, it is important to consider that the careers preferred by women present unfavorable figures both in terms of employability and in terms of income levels compared to the STEM areas that are masculinized.

This Latin American Network and this Handbook are born from the context described above as an appropriate response to include more girls, adolescents, and young women in the STEM world. The goal of mentoring programs is to offer data-based support for the benefit of students and young workers, in order to attract them and help them stay in these areas.

Introduction

This work arises as an initiative of Instituto Profesional Duoc UC , within the framework of the UNESCO-UNEVOC Network Coaction Initiative 2023[1], with the strategic objective of contributing to the reduction of gender gaps in STEM areas in the Latin American context.

From the Institutional Community Engagement and Institutional Integration Department of Instituto Profesional Duoc UC in Chile, as a UNESCO-UNEVOC Center, we invited various UNEVOC Centers to participate in the project titled "Latin American Mentorship Network for Gender Equality and Opportunities in STEM Fields." This initiative was developed in collaboration with the Ministry of Education of Chile and targeted girls, adolescents, and young women who were starting their professional studies or their working lives.

The so-called STEM areas present various gender gaps that impact the possibility of women to access and develop as professionals. International reports (UNESCO-UNEVOC, 2020; UNESCO, 2019; UN Women, 2020) and several studies (Muñoz, 2019; Sevilla, 2021; Sevilla, Bordón and Ramírez-Espinoza, 2023) show that there are significant gender gaps in participation in technical education, particularly in STEM areas. Increasing women's participation in these areas is essential to achieve growth based on equality, sustainability, and women's economic autonomy, as highlighted by the United Nations 2030 Agenda (UNESCO, 2015; UNESCO, 2020).

This handbook is the culmination of collaborative efforts among UNEVOC Centers convened by Instituto Profesional Duoc UC in Chile. It was produced during the working conference held in Chile in November 2023.

1 The UNESCO-UNEVOC network, whose purpose is to promote quality technical and vocational education to improve employment opportunities and meet the demands of the labor market, annually provides a variety of monetary funds through the submission of projects that seek to achieve this purpose.

• **Project coordinator:** Duoc UC (Chile)

• **Invited partner institutions:** Fundación Paraguaya de Educación (Paraguay), Iloilo Science and Technology University (Filipinas), Conselho Nacional das Instituições da Rede Federal de Educação e Tecnológica (CONIF, Brasil), Ministerio de Educación de Chile, INEFOP Uruguay.

• **Implementation schedule:** October - December 2023

The literature reviewed for the diagnosis of women's participation in STEM areas in Technical and Vocational Education (TVET) in Latin America, carried out in the context of this project, highlights the potential of TVET for the training and integration of women in careers related to STEM areas, especially in technology and engineering (Sevilla, 2021; UNESCO-UNEVOC, 2020). It also suggests that there are curricular, organizational, and cultural barriers that perpetuate the perception of STEM as an exclusively male field (Sevilla, 2021).

According to the article "STEM and Gender Gaps in Latin America," the skills considered within STEM areas can be a relevant factor in terms of the economic inclusion of vulnerable or underrepresented populations. According to this article, a large proportion of programs or projects aimed at promoting competencies in these areas (STEM) have the objective of attracting these groups, specifically mentioning that: "One of these segments is that of female students, who, according to university graduation data, women are significantly less likely to pursue a university degree or specialized studies focused on STEM fields."

The mentioned article refers to the World Economic Forum report (WEF, 2016) "The Future of Jobs": "When robots, artificial intelligence, and automation leave 7.1 million people unemployed through redundancy, automation, or disintermediation, women will bear the brunt of unemployment primarily for two reasons: a) the majority of job losses in technology are in roles dominated by women, such as administration, and b) although the creation of 2.1 million new jobs will partially offset job losses, women will have little participation in them, due to their lack of preparation in areas such as computer science, mathematics, architecture, and engineering. Therefore, it is less likely that the new positions will be filled by women.

The explanations accounting for gender gaps in STEM fields are varied. In the diagnosis carried out for this project, some of the barriers and factors that influence gender gaps in the Latin American context are mentioned (note that this is further developed in the diagnostic report):

- Gender stereotypes deeply rooted in the education system.
- Family influence in career choices.
- Promotion and evaluation based on male standards.
- Micro-practices that perpetuate stereotypes.
- Responsibilities and care tasks.
- Discrimination and naturalized inequities in the transition to the labor market.
- Various obstacles to hiring women in STEM.

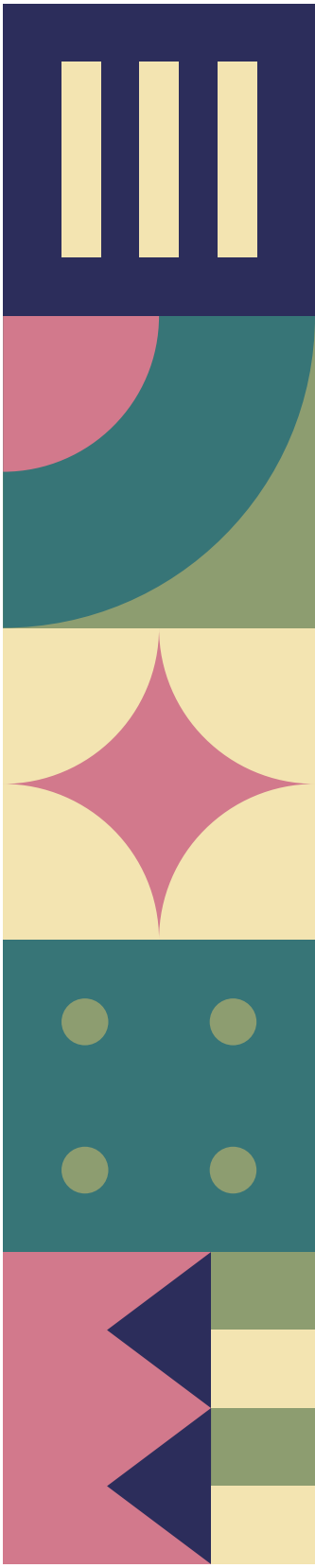
The aforementioned points highlight the relevance of this project, whose main strategic objective is to contribute to reducing gender gaps in STEM fields through a mentoring system aimed at young women, enabling and empowering their participation in education within these areas and their subsequent entry into the workforce.

For this purpose, it is crucial to consider intersectionality as a fundamental pillar in initiatives for female inclusion. Intersectionality in feminism refers to the idea that experiences of oppression and discrimination are not uniform for all women, as these experiences are influenced by a variety of interconnected factors, such as gender, race, social class, sexual orientation, disability, among others.

The need to incorporate intersectionality lies in recognizing the diversity of women's experiences and understanding how different forms of oppression intersect and reinforce each other. Some key reasons for this are:

Recognition of diversity: Women are not a homogeneous group. Their experiences and challenges vary according to their intersecting identities. Ignoring these differences can lead to a feminism that only addresses the issues of a specific group of women, leaving others aside.

Expansion of inclusion: Intersectionality seeks to include and represent women of all races, social classes, sexual orientations, disabilities, among other characteristics. By addressing the intersections of oppression, a more inclusive and equitable feminism is promoted.



A more comprehensive analysis: Intersectionality provides a more comprehensive framework for analyzing how different forms of oppression intersect and reinforce each other. For example, a black woman may face challenges that are unique to both her race and gender, and these challenges may be different from those faced by a white woman.

Improvement of strategies and policies: By understanding intersectionality, feminism can develop more effective strategies and policies to address the multiple layers of oppression faced by some women. This involves recognizing and addressing the systemic inequalities that affect different groups of women uniquely. In summary, intersectionality in feminism and, therefore, in initiatives that seek the inclusion of women, is crucial to ensure that the movement is inclusive, representative, and capable of addressing the diverse experiences and challenges that women face based on their intersecting identities.

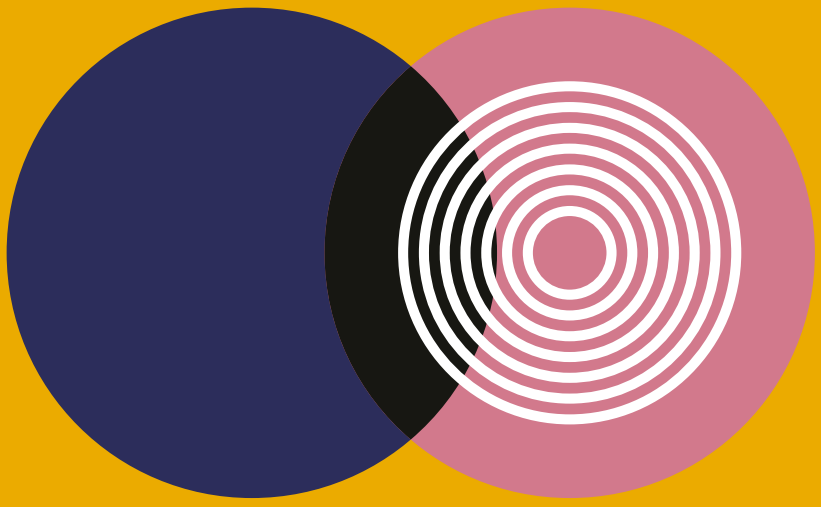
For the development of the Handbook, an exhaustive review of the literature related to gender equality in STEM and best practices for empowering women in these disciplines was conducted. An interdisciplinary team will be established, including experts in gender, education, and STEM, ensuring a comprehensive perspective in content creation. In addition, consultations will be held with leading gender equality organizations to incorporate successful experiences and lessons learned.

The creation of the Handbook will be guided by a participatory approach, including continuous feedback from the STEM community and potential users. Workshops and roundtable discussions will be conducted with prominent professionals in STEM, as well as those who have overcome gender challenges in their careers. This feedback will be essential to ensure that the Handbook is relevant, practical, and effective in addressing the specific barriers faced by women in these areas.

For the implementation of the mentoring system, a structured framework will be designed to facilitate the effective identification and pairing of mentors and mentees. Clear criteria will be established for the selection of mentors, considering not only professional experience but also the ability to provide guidance and emotional support. The pairing process will be carried out carefully, considering professional and personal affinities to foster strong mentoring relationships.

Training for both mentors and mentees will be a fundamental part of the methodology. Specific workshops and resources on leadership, professional development, and soft skills will be offered, providing both parties with the necessary tools for effective collaboration. In addition, mechanisms for ongoing monitoring and periodic evaluation will be established to measure progress and adjust as necessary, ensuring the effectiveness and adaptability of the mentoring system.

Together, this methodology will focus on building a solid and sustainable foundation for the Latin American Network, promoting gender equality and opportunities in STEM through a comprehensive Handbook and a structured and effective mentoring system.



Objectives

The objectives of this volume are both general and specific, directly related to the context provided above and the proposal regarding the gender gap observed in the participation of women in STEM fields, specifically in the Latin American region.

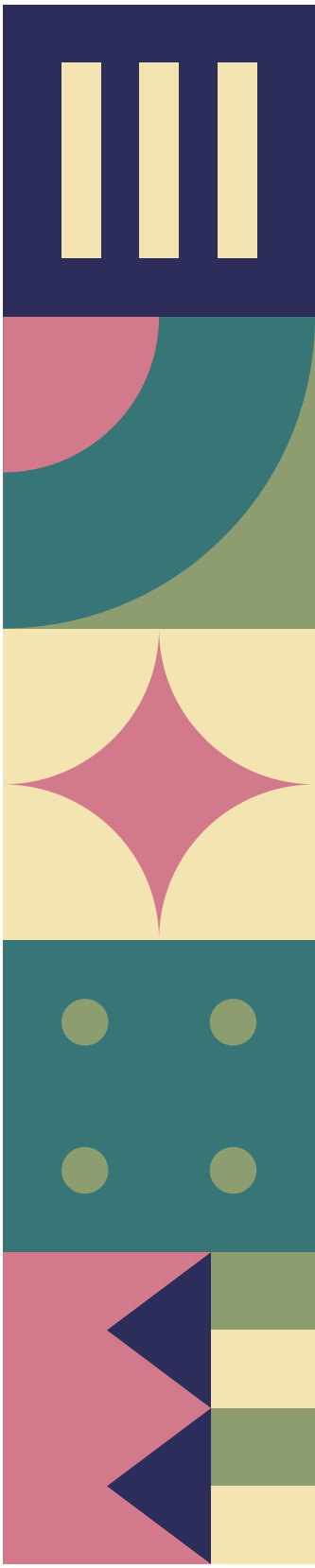
GENERAL OBJECTIVE

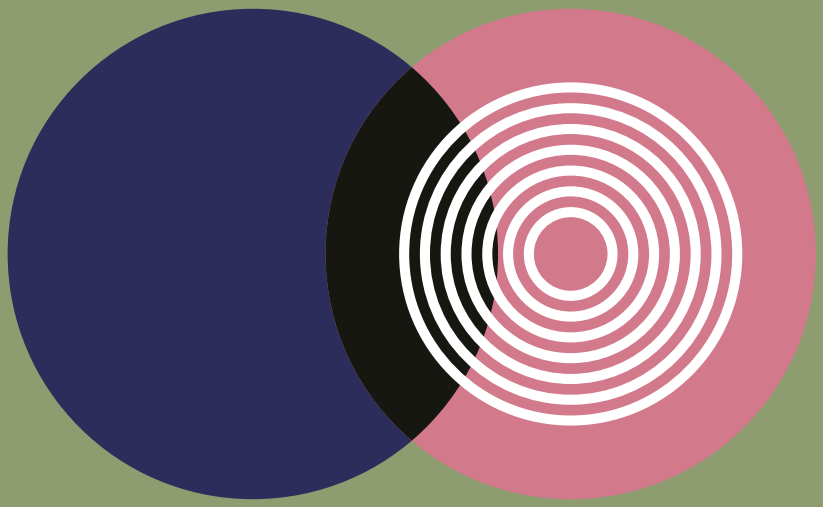
The general objective of this Handbook is to provide a practical guide for implementing a mentoring system or program in various institutions (higher education, government, and foundations), based on the best practices identified in the participating institutions of the project and the regional-level diagnosis.

SPECIFIC OBJECTIVES

The specific objectives sought through this volume and the mentoring program include, but are not limited to:

- Raising awareness about the existing issues related to gender gaps in higher education.
- Promoting a proactive approach to reducing these gaps in the region.
- Increasing the participation of girls, young women, and women in historically male-dominated STEM fields.
- Improving the study and work experiences for young women in historically male-dominated STEM fields.
- Providing guidelines for monitoring and evaluating programs that allow for compatibility of data obtained in different countries, in order to systematize them and thus have a clearer picture of what is happening in the region.





Data Collection

Through an investigation into the situation faced by various Latin American countries regarding the participation of women in STEM fields and Technical Professional Education (TPE-STEM), it was confirmed that significant gender gaps exist in these areas. Despite a general trend towards reducing these gaps in the region, this improvement has not consistently led to a greater presence of women in STEM careers.

The study has revealed that gender gaps in education are less pronounced in general access to higher education, and in some cases, women outnumber men in enrollment. However, when focusing on STEM careers, women's participation significantly decreases, averaging between 25% and 30% in these fields. This disparity is even more evident in areas such as engineering, technology, and applied sciences, and even more pronounced in disciplines such as programming and computer science, where the presence of women barely reaches 10% to 15%. It is important to note that these gaps persist throughout the academic trajectory.

The gender gap in TVET is even more pronounced than in higher education, with women's participation significantly lower than that of men, averaging around 43%. Despite the fact that around 55% of women choose technical careers in higher education, this figure decreases substantially in the case of STEM careers, reaching around 15% on average. This disparity manifests itself mainly in engineering and technology careers.

In terms of **academic performance,** women perform better than men in various aspects, including graduation rates, retention rates, and study duration, suggesting that they not only enter these areas, but also graduate in greater numbers and in less time than their male counterparts.

Despite these advances in education and academic performance, gender gaps persist in the professional and labor fields. The **main barriers** are associated with gender stereotypes entrenched in the educational system, which limit women's choice of careers in STEM; family influence on career choices, tending to exclude women from opportunities in STEM areas due to lack of information and entrenched stereotypes; and promotion and evaluation based on male standards in STEM. Additionally, there are micro-practices that perpetuate gender stereotypes in education and technical training, as well as the lack of visibility of women in STEM, which hinders opportunities to inspire girls and young women.

Among these initiatives, those that develop mentorships, support networks, training, awareness-raising, visibility, and socio-emotional support stand out. These initiatives aim to promote women's participation in these areas, both in terms of access and their educational and professional trajectories.

IN-PERSON WORKING SESSION - WORKSHOP

The in-person work session that took place in the cities of Valparaíso and Viña del Mar (Chile) had the purpose of sharing information and experiences from the different participants, with the objective of structuring the main ideas for the design of a mentorship program and collaborative best practices in order to facilitate gender equality and opportunities in STEM professional areas.

On the first day of work, a training on the concept of "mentoring" was conducted by the invited expert, and then began to converse and reflect on gender equality in the workplace and in higher education, in STEM areas.

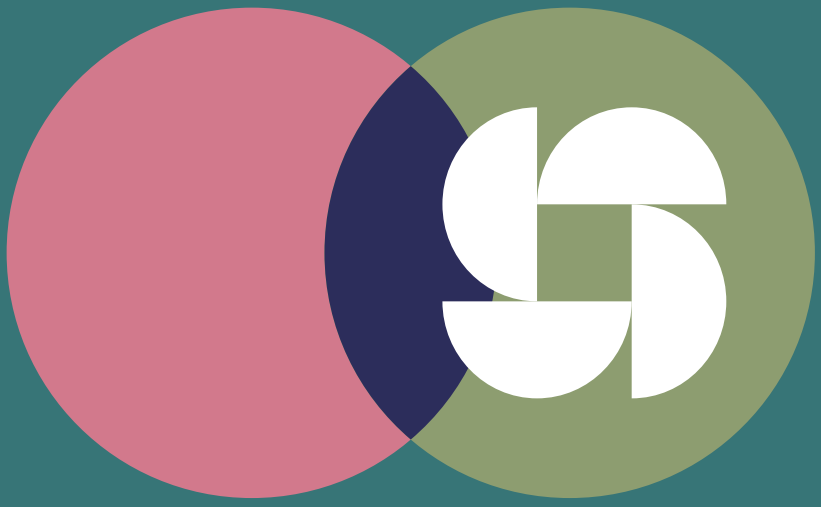
In small groups, the context of each participant was discussed, considering the country, city, and organizational style in which they worked, in order to begin to gather the first inputs for the final handbook (mentoring program).

In addition, this first day included some Duoc UC students and alumni who shared their experiences and the barriers they have had to overcome to study and work in male-dominated areas. They were also able to talk about their participation in a mentorship program that takes place at Duoc UC, "More Women in ICTs," in the School of Engineering, Environment, and Natural Resources.

The work of the second and third da swas organized so that each group would respond to the following questions regarding a mentorship program: How to begin, how to maintain, how to scale and evaluate it. Each group had to discuss, debate, and reflect on one of these questions and provide suggestions and guidelines for executing a mentorship program that is sufficiently flexible to consider the context and particularities of each country.

The final session concluded with the groups presenting their work and providing detailed information on the sections, steps, and key elements that the mentoring program should consider to be successful and have a positive impact on the participating adolescent and young women.

All the information gathered during the First Working Conference of the Latin American Mentoring Network for Gender Equality and Opportunities in STEM Areas has been the main input for the development of the proposal for this document, which is presented below.



Implementation of Mentoring Programs

To start implementing a mentoring program, it is important to have a clear understanding of the term. Mentoring is a personal or professional development relationship in which a more experienced or skilled person provides guidance, advice, and support to a less experienced person or someone who is looking to improve in a particular area. The primary goal of mentoring is to share knowledge, experiences, and perspectives to help the mentee achieve their goals, develop skills, and overcome challenges.

The mentoring program for STEM students and technical and professional secondary school students recommended in this document aims to provide support and guidance in academic and professional development. By bringing mentors and mentees together in a mentoring process, it is expected to achieve various objectives that can be strategic for the implementing institutions and, at the same time, benefits for the institutions, mentors, and mentees:

1) Promoting gender equality:

Mentorship can be a space to foster gender equality and combat gender stereotypes in STEM fields.

2) Increasing women's opportunities in the STEM field:

Mentorship provides STEM students and technical and vocational education students with support and guidance that helps them develop the skills, confidence, and connections they need to face challenges and achieve their academic and professional goals.

3) Supporting, guiding, and providing role models:

The mentors share their experiences, knowledge, and skills with mentees, offering guidance and support in academic and professional development, as well as role models for STEM-interested students.

4) Raising awareness, educating, and reflecting on gender stereotypes and prejudice:

Mentoring can be a space to discuss and reflect on gender stereotypes and prejudice in the STEM field, promoting awareness and change in society.

5) Encouraging students to join the support network:

The mentorship program seeks to build a support network that allows STEM students to access resources, connections, and opportunities in the STEM field, making it easier for them to enter and succeed in this field. Also for students who are interested in this field, they can access resources and information on how they can orient their professional career.

Mentorships can take on various forms and structures depending on the context and specific objectives of the program that is being implemented. Below are some of the common types of mentorships:

- **Traditional Mentorship**

Senior-Junior: This is the most classic model, where a more experienced person (mentor) guides and advises someone less experienced (mentee)

- **Reverse Mentorship**

Junior-Senior: In this case, the less experienced person assumes the role of mentor by teaching the mentee about new technologies, fresh perspectives, or specific skills.

- **Group Mentorship**

Collective: A mentor works with a group of mentees simultaneously. This encourages the exchange of ideas and experiences between the mentees.

- **Peer-to-Peer Mentorship**

Peer mentoring: People with similar backgrounds and skills provide support and guidance to each other.

- **Remote mentorship**

Online mentorship: Mentoring that takes place through digital means, such as video calls, email, or online platforms, allowing the mentor and mentee to be geographically separated.

- **Mentorship Sponsoring**

Professional Promotion: A mentor (sponsor) uses their position and network to actively promote the career of their mentee, helping them to advance and obtain professional opportunities.

- **Flash Mentorship**

Brief and Specific Advice: This type of mentorship is designed to be short-term and focused, providing guidance on specific topics or challenges.

- **Rotating mentorship**

Role-switching: Participants can switch between being mentors and mentees, creating a dynamic exchange of knowledge and experiences.

- **Internal mentorship**

Mentorship that occurs between employees within the same company. It can help with integration, professional development, and talent retention.

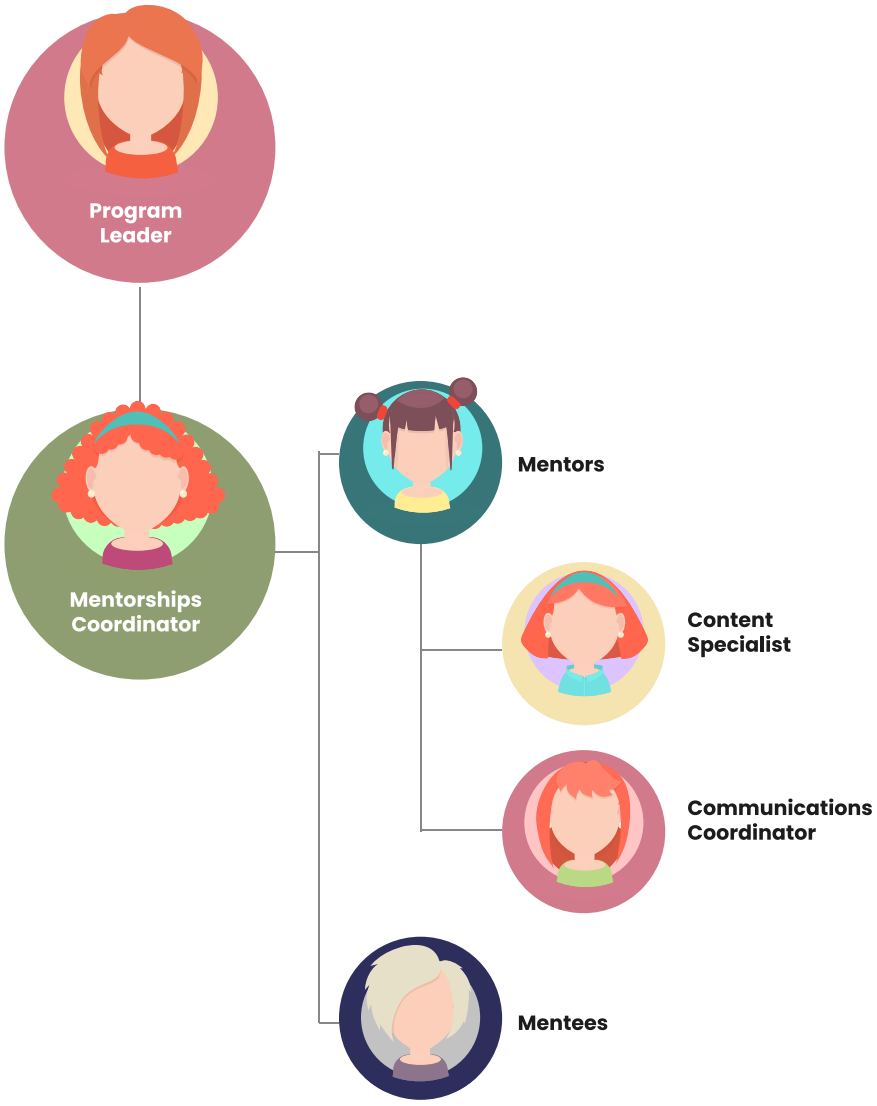
- **Academic mentorship**

Student-Professor or Researcher: It occurs in academic settings and can help students navigate their studies, research, and career decisions.

It is important to note that the effectiveness of a mentorship depends on the quality of the relationship, open and honest communication, and the willingness of both parties to commit to the process. Additionally, mentorships can evolve and adapt to the changing needs of the mentees over time.

1. WORK TEAM STRUCTURE

In order to develop a meaningful and successful mentorship program, it is necessary to have a human team that is up to the task. The following team structure focuses on ensuring the correct implementation of the mentorships. The following positions are considered essential, but they are not the only ones that can be developed to support these programs, especially if you are looking to scale them and expand them.



Director/Leader of the program

a. The role of the director/leader is to contribute to achieving the program's goals by promoting its development and reach. They lead the alignment of the program's goals with the goals of the institution, the planning of activities, indicators, and expected results.

b. Responsibilities:
Set deadlines and supervise the program's operation.
Review results and generate an improvement plan.
Establish strategic partnerships and manage the resources needed for the program.

Mentorship Coordinator

a. Coordinate the necessary actions for the implementation of mentorships.

b. Responsibilities:
Organize and supervise mentorship activities.
Recruit, train, and match mentors and mentees.
Track and evaluate the program.

Mentors

a. Professionals with experience in STEM who provide guidance, support, and advice to mentees.

b. Responsibilities:
Conduct mentorships.
Document the mentorship process.
Raise alerts about the program or mentees, if necessary.

c. Within the mentors, we can find volunteers willing to take on the following responsibilities:

Content Specialist: develops educational materials and resources to support mentorships.
Communications Coordinator: responsible for promoting the program and creating an online community.

Mentees

a. Students or professionals in training in the STEM or technical professional field, who are seeking guidance and professional development.

b. Responsibilities:
Be committed and actively participate in scheduled meetings.
Provide feedback on the mentorship process.

2. STAGES OF A MENTORSHIP CYCLE

The duration of a mentorship cycle is typically between 4 and 6 months, depending on the context and organization of the institution that is implementing it. Each cycle should consider the following stages, with the different aspects to consider:

2.1) Planning Stage

Actions to consider:

a. Define the specific objectives of the mentorship program.
In charge: Leader of the program - Mentorship coordinator

b. Identify potential mentors and mentees, and strategic alliances.
In charge: Mentorship coordinator

c. Identify the selection criteria for mentors and mentees.
In charge: Leader of the program - Mentorship coordinator

d. Assess the material and human resources needed.
In charge: Mentorship coordinator

e. Assign responsibilities for each stage.
In charge: Leader of the program

f. Develop a system for measuring and evaluating the mentorship process.
In charge: Leader of the program - Mentorship coordinator

It is important that, for this first stage of the process, the remuneration for the program leader and the mentorship coordinator be considered, as well as the complete overview of the process that follows.

2) Outreach Stage

Actions to consider:

a. Define campaigns that will be carried out and the target audience for each one.
In charge: Program leader - Mentorship coordinator.

b. Develop dissemination strategies with specific dates.
In charge: Program leader - Mentorship coordinator.

c. Establish a permanent communications plan.
In charge: Program leader - Mentorship coordinator.

c. Establish a permanent communications plan.
In charge: Program leader - Mentorship coordinator.

While the program itself does not require a formal dissemination manager, although it would be ideal, it does require support to coordinate communications, develop campaigns to invite participation in the program, and provide support for a web platform.
At this stage, it is suggested to consider resources for the dissemination and promotion of the program that integrate the following information, depending on the channel:

• Program description: Include a brief description of the program and benefits for both mentors and mentees.

• Requirements and benefits: Detail the requirements for participating in the program, as well as the benefits for both parties.

• Important dates: Dates, deadlines, and steps to follow to register.

• Registration process: Information on how to register for the program, deadlines, and steps to follow to participate.

• Contact information.

• Testimonials: Including testimonials from previous participants can be helpful to demonstrate the benefits and positive impact of the mentorship program.

• Social media posts: It is important to segment content and target the target audience.

• Relevant and valuable content: Posts should provide valuable information and connect with the audience, such as stories, tips, strategies, and experiences from mentors and mentees.

• Posts should encourage interaction and communication between mentors, mentees, and the community at large, allowing them to share their experiences, tips, and learnings.

With respect to the content that should be included in a platform or website, it is suggested:

• Program description: Include a detailed description of the mentorship program, its goals, benefits, and the type of mentorship that is offered.

• Mentorship process information: Provide details on how the mentorship process works, including the duration, frequency of sessions, and activities that are conducted during mentorships.

• Mentor profile: Include information about the mentors who participate in the program, their backgrounds, experience, and areas of specialization.

• Testimonials and case studies: Including testimonials from previous participants and case studies can be helpful to demonstrate the benefits and positive impact of the mentorship program.

• Contact information: Provide clear contact information so that interested parties can obtain more details or enroll in the program.

3) Participant selection stage

To select participants, the following is required:

a. Collect applications from mentors and mentees.
In charge: Mentorship coordinator.

b. Evaluate applications and select participants.
In charge: Mentorship coordinator.

c. Inform selected participants and provide instructions for what comes next.
In charge: Mentorship coordinator.

STEM Mentor Profile

When selecting mentors, it is important to consider a number of requirements, as much as possible. This will lead to more meaningful and high-quality mentorships. It is expected that a mentor:

• *Have more experience than their mentee,* that is, depending on the type of mentorship, they must be working in a STEM-related field of study, have academic training in some STEM area, or have already advanced in their studies in a STEM career.

• *Mentors should be interested in promoting diversity and gender equality.* They should be committed to the cause of promoting diversity and gender equality in STEM fields and be willing to support women interested in and from these careers.

• *Mentors should demonstrate communication and empathy skills.* They should be able to establish an emotional and trusting connection with

their mentees, which will allow them to effectively transmit knowledge and skills.

• *Mentors should be available and committed to the program.* They should be willing to dedicate time and effort to the mentorship program, participating in activities and meetings when necessary.

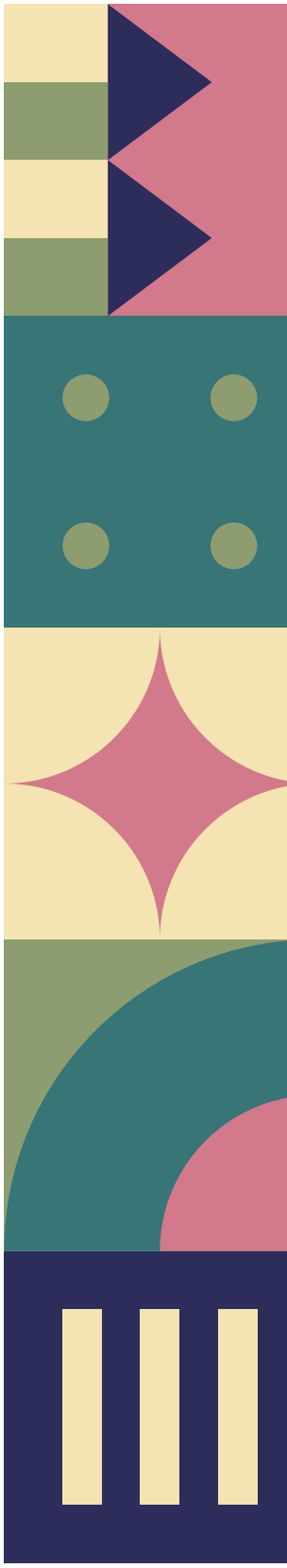
• *Mentors should be able to empower and support their mentees.* They should be trained to identify and address the needs and challenges of their mentees, helping them to develop their potential and achieve their professional goals.

2.4) Mentorship training stage

The main actions to be considered for this stage are:

a) Train mentors
In charge: Mentorship coordinator – Content specialist mentor

b) Provide guidance to mentees on how to make the most of mentorship
In charge: Mentorship coordinator – Content specialist mentor



Mentorship Preparation Program

• **Objective:** To train women professionals and university students in the skills and knowledge necessary to serve as mentors in STEM mentorship programs.

• **Methodology:** The program will be delivered in a virtual format (recommended due to the amount of time that a mentor may have available) and will last for 1 to 2 sessions. A platform could also be created where mentors can take a short asynchronous course with these contents.

• **Contents:** The following contents can be divided into one or several sessions. It is recommended that the training should not be extended to too many sessions, but this will depend on the context and the availability of the mentors.

• **Workshops and trainings:** Design workshops and trainings on specific skills, career strategies, and professional development for mentees. These activities can be led by experts in the field or by experienced mentors, and may include practical exercises, simulations, or in-depth discussions.

These workshops and trainings must be prepared with physical/ digital material for mentors, such as guides, manuals, coaching documents, etc.

2.5) Matching stage

The actions to be considered for the matching stage are:

a. Match mentors and mentees based on their goals, interests, and needs
In charge: Mentorship coordinator.

b. Inform participants with whom they have been matched and invite them to the kick-off ceremony
In charge: Mentorship coordinator.

MATCHING GUIDELINES

To ensure that the matching of mentors and mentees meets the purpose of achieving quality mentorship and thus contributing to the program's objective, the following guidelines should be considered:

• *Interviews and Needs Assessment*: Conduct interviews with mentees to understand their goals and needs, and then match them with mentors who can meet those needs.

• *Interests and Specialization*: Consider the interests and specialization of mentors when matching them with mentees, so they can provide relevant guidance.

• *Personal and Professional Compatibility*: Look for personal and professional compatibility between mentors and mentees to foster an effective mentorship relationship.

These approaches will help to ensure that the right mentors are identified and effectively matched with mentees, thus promoting a productive and enriching mentorship environment. With regard to "interviews" and "needs assessments," it is important to follow certain steps in order to facilitate the matching process.

Interviews

Establish a timeline: Define a period for conducting interviews with mentees and potential mentors, ensuring they have enough time to prepare and participate effectively.

Prepare relevant questions: Design questions that will allow you to understand the mentees' goals, challenges, and expectations, as well as the experiences, skills, and approaches of potential mentors.

Create a trusting environment: Provide a comfortable and confidential environment for mentees to share their needs openly, and for potential mentors to talk about their experiences and approaches.

Needs assessments

Response analysis: Review the mentees' responses to identify patterns, common needs, and priority areas of focus.

Comparison with mentor profiles: Evaluate the mentees' responses in relation to the profiles of potential mentors, looking for matches in areas of experience and focus.

Needs-based matching: Use the collected information to match mentors with mentees, ensuring that the selected mentors can address the specific needs of the mentees.

In Appendix IV, you can review the "Matching Survey," which is suggested to be completed when potential mentors and mentees apply.

2.6) Implementation Stage

The execution of the program should include the following actions:

a. Launch the mentorship cycle with a solemn ceremony
Responsible: Program leader - Mentorship coordinator.

b. Execute mentorship meetings
Responsible: Mentors

c. Check progress and address challenges
Responsible: Mentorship coordinator.

MENTORSHIP MEETINGS

The table below provides guidance for conducting mentorship meetings, considering an 11-week cycle. It is recommended that this be adapted to the cycle established by each organization.

Meeting	Format	Contents	Description
Meeting 0	Collaborative -in person	Opening ceremony	
Meeting 1	Personal -In person	Personal and professional experiences Reflection on gender stereotypes	Address issues related to the personal and professional experiences of mentors and mentees in the STEM area, as well as reflect on the gender stereotypes and prejudices that women face in this field.
Meeting 2	Personal -In person/remote	Tips and strategies Skill development	Discuss practical tips and strategies to address academic and professional problems, as well as develop skills specific to the STEM area.
Meeting 3	Personal -In person/remote	Access to opportunities Reflection on gender stereotypes	Address issues related to access to academic, professional and development opportunities in the STEM area.
Meeting 4	Collaborative -In person/remote	Skill development - Access to opportunities	Reflect on gender stereotypes and prejudices, as well as develop skills and access opportunities in the STEM area.
Meeting 5	Collaborative -In person/remote	Closing ceremony	

General Recommendations for Implementation

It is very important to consider the well-being and motivation of mentors, especially those who invest their free time and energy to support their mentees. To this end, we leave some ideas for recognizing their achievements, importance, and trajectory within the mentoring program.

• Annually host closing ceremonies that include awards or recognition for mentors.

• Provide mentors with ongoing feedback from their mentees' evaluations.

• Through the mentoring program, provide opportunities for mentors to network, gain visibility, or receive training on a regular basis.

• Implement a mentor support program. This could include, among other things, providing mentors with access to:

- A community and network of contacts within the STEM world, where mentors can also find support, a sense of belonging, and guidance.

- Ongoing training in mentoring skills and methodologies, ideally with experts, to discuss experiences, evaluate progress, and answer questions.

- Include a set of awareness activities for mentors in a variety of topics, such as: gender perspective, intersectionality, soft skills, mentoring techniques, etc., in the initial training.

2.7) Follow-up Stage

This stage, the monitoring stage, although it is located at the end of this section, must be developed throughout the mentoring cycle by the mentoring coordinator and under the supervision of the program leader.

Tools and methods for tracking

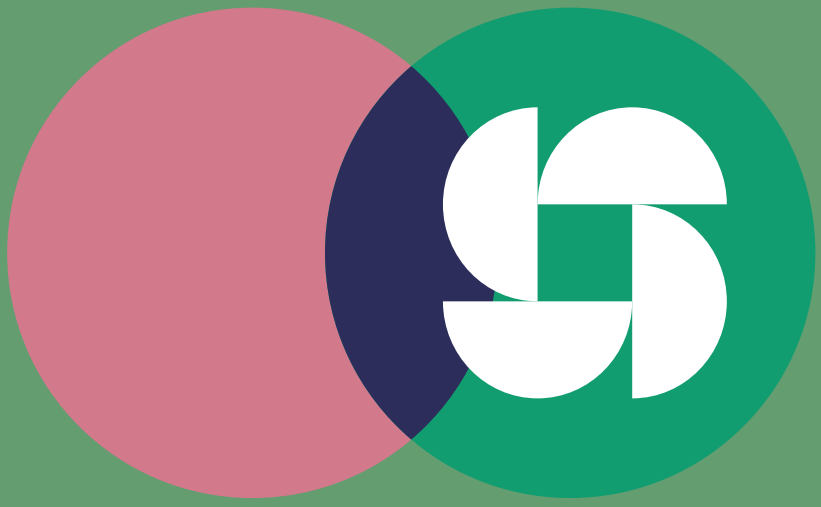
- *Instant messaging apps*: Platforms like WhatsApp, Telegram
- *Video conferencing platforms*: Tools like Zoom, Teams, or Google Meet can be used to conduct online mentoring sessions and track the progress of mentorships.
- *Project management apps*: Platforms like Trello, Asana can be used to track the progress of mentorships and keep a record of the sessions held.
- *Group communication apps*: Platforms like Discord or Slack can be used to create mentorship groups and facilitate communication between mentors and mentees. These apps allow for sending messages, multimedia, and group video calls, which promotes collaboration and the exchange of ideas.

Recording system

Web platform that serves as a repository, community for exchanging experiences, delivery of information, data, and tracking records, etc.

Evidence system that can be accessed by the entire mentorship network, taking the necessary security precautions.

Mentorship community: to share information and support experiences, through forums, information, news, courses, recognition, etc.



Evaluation

1. EVALUATION OF THE MENTORSHIP PROGRAM

Evaluating the mentorship process is an essential component of our program focused on increasing women's participation in STEM fields. Mentorship plays a fundamental role in promoting gender equality and professional development for women, in fields where they have historically been underrepresented. Therefore, it is essential to understand how mentorships are being carried out and what impact they have on mentors and mentees. Mentorship program evaluation is crucial for several reasons:

• **Continuous improvement:** It allows identifying areas for improvement in the program and adjusting mentorship strategies to ensure they are effective and relevant for participants.

• **Measuring the achievement of objectives:** It helps to verify whether the objectives set for mentorships are being met and whether the sessions defined are being effective in achieving those objectives.

• **Meaningful feedback:** It facilitates the obtaining of valuable feedback from mentors and mentees about their experience in the program, which in turn helps to adapt the process to meet their needs and expectations.

• **Identifying challenges and solutions:** It allows identifying any challenges or problems that may arise during mentorships and finding effective solutions to address them.

• **Measuring results:** It helps to measure the results of the program on the personal and professional development of mentors and mentees, which provides evidence of its effectiveness and value.

• **Ensuring satisfaction:** Evaluating the satisfaction of mentors and mentees with the mentorship process is essential to ensure that they feel supported and satisfied with their participation.

The elements for evaluating the STEM Mentorship Program are:

a. Best Practices Document for Mentoring

This document is a compilation of effective practices and lessons learned from the mentoring process. It contains guidelines and recommendations based on the accumulated experience of successful mentorships. The main purpose is to provide local and contextualized guidance for mentors on how to effectively carry out the mentoring process, according to the specific program in which they are participating.

b.Regular and Continuous Follow-up and Evaluation

A regular and close follow-up process is established that takes place every 15 days throughout the mentorships. The main objective is to ensure that the mentoring sessions defined for the period are being carried out as planned. In addition, feedback is collected from both mentors and mentees regarding the mentoring goals. This allows for adjustments or improvements to be made during the process, if necessary.

The overall satisfaction of both parties is also evaluated in relation to the execution of the program. Various tools, such as periodic surveys and records of quantitative and qualitative data, can be used to measure the progress and effectiveness of the mentorships.

Consider measuring efficiently through key performance indicators, such as the number of trainings implemented, the number of meetings between mentors, and the percentage of attendance at sessions.

Suggestion for Quarterly Follow-up Survey: Appendix I.

c. Mentor Evaluation: Motivations, Expectations, Benefits, and Suggestions

This evaluation focuses on understanding their motivations for participating in the mentorship program and their initial expectations. It also evaluates the benefits they have experienced throughout the process and collects suggestions for improving the program. Surveys and interviews are used to obtain detailed information about the experience and perceptions of mentors, which allows the program to be adapted to meet their needs and maintain their continued commitment. Key indicators included in the evaluation instrument are the level of satisfaction and the number of trainings implemented.

Suggestion for Mentorship Experience Survey in Appendix II.

d. Mentee Evaluations: Satisfaction and Follow-up During Mentorship

The evaluations include satisfaction surveys and continuous follow-up during the mentoring process. These evaluations allow mentees to express their level of satisfaction with the program and provide feedback on their experience. Additionally, they help to measure progress towards achieving their personal and professional goals. Follow-up during the mentorship ensures that challenges are addressed in a timely manner and that the value of the mentorship is maximized in their development. Key indicators here include the level of satisfaction and the number of sessions held.

Suggestion for Mentee Experience Survey in Appendix III.

e. Evaluation Report at the End of Mentorship

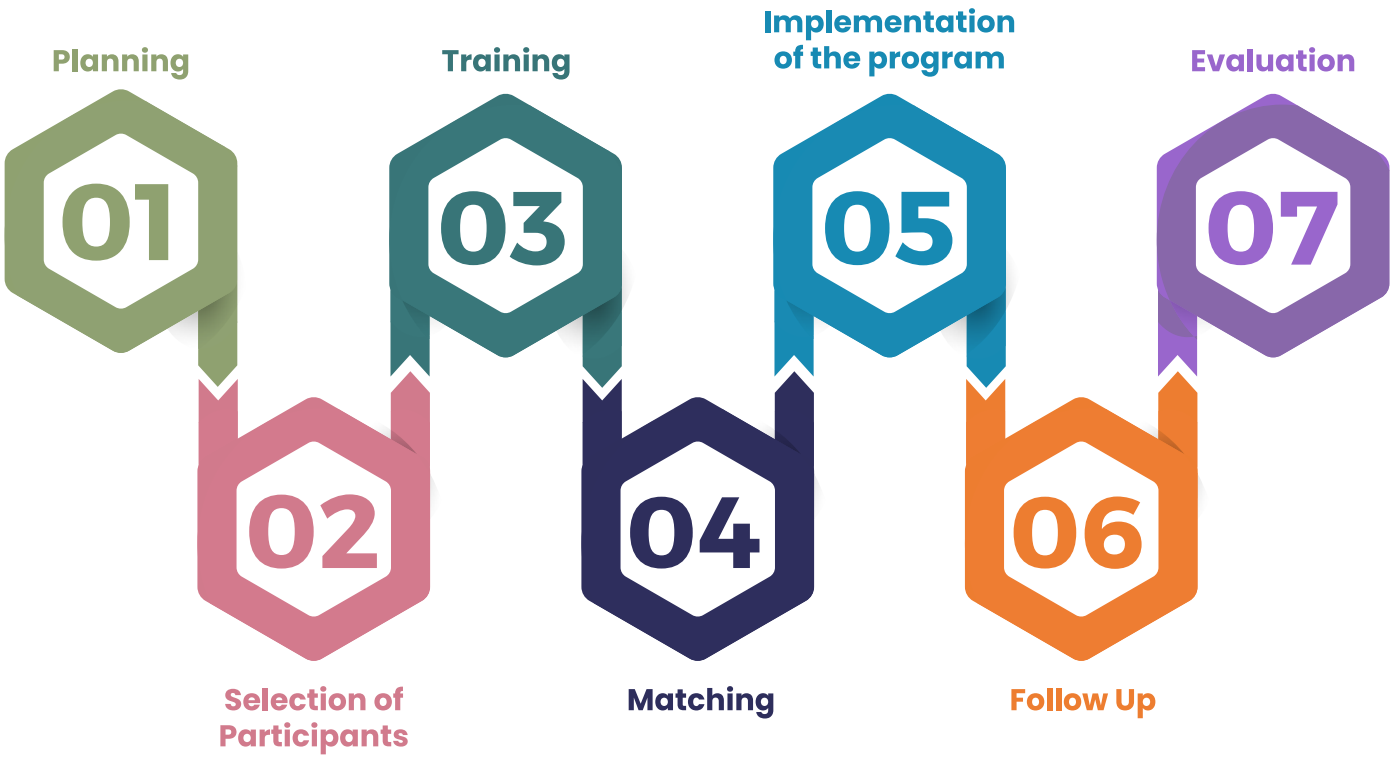
This report is a comprehensive evaluation that is conducted at the end of each mentorship, which generally lasts 2 to 4 months. It provides an overall view of the achievements, challenges, and lessons learned during the mentoring process. The report includes a summary of the goals achieved, the obstacles overcome, and the areas where improvements can be made. Additionally, the positive impact that mentorship has had on mentors and mentees is highlighted. The report serves as a valuable tool for learning from experiences and ensuring the continuous improvement of the program.

2. EVALUATION OF THE PROGRAM (PROCESSES)

Continuous improvement evaluation plays a crucial role in the effective management and administration of the program. Its main purpose is to evaluate the fulfillment of the defined objectives, which includes measurable indicators according to the established objectives. These indicators can cover aspects such as the evaluation of the dissemination of the program, the deadlines set for each stage, the fulfillment of workflows, the designated responsible persons, and the periodicity of the activities, which is carried out semi-annually.

Evaluation and Monitoring Tools

• **It is recommended to use mid-year and final reports that integrate measurable indicators and survey results.** These reports provide a comprehensive overview of the performance of the program and allow the identification of areas that require improvement.



• **Consider continuous monitoring of each necessary stage included in the cycle of the mentorship program, according to the Gantt chart to be executed.** Each stage is evaluated considering deadlines, responsible persons, budget, and use of resources. The logistics of each action or stage is meticulously reviewed to ensure that it is carried out efficiently and coordinated with other areas or people.

• **Human Resources and Budgetary Evaluation.** The evaluation covers the human resources of the program, including mentors, coordinators, executives, among others. The use of financial resources is also examined and the adequacy of the budget to meet the established objectives is considered.

• **Use of the "Educational Stoplight" tool.** This tool is used by the Paraguayan Foundation, a partner of this network. It is used as a self-assessment tool. The indicators are adapted to mentoring to measure the performance of the program and its alignment with quality standards.

• **Traceability Evaluation. Traceability evaluation is a fundamental component for eventually measuring the impact and results of any mentoring program.** This process focuses on comprehensive tracking of the students who participated as mentees, with the goal of obtaining key data that reflect the results of the program. This includes evaluating admission and exit grades of the career, knowing the workplaces of the mentees and determining if they have chosen to specialize in areas related to STEM. It is also essential to examine how many of these mentees have decided to become mentors, which provides valuable information about the mentoring cycle and its continuity.

• **The experience of the mentees in the short and long term is also considered in the evaluation.** Conducting quantitative and qualitative evaluation studies contributes to consolidating tangible results, which not only supports the continuous improvement of the program, but also facilitates its dissemination by showing measurable results. Keeping contacts updated is a key aspect, and mentors can play a crucial role in this process by assuming the responsibility (voluntary) of maintaining the connection with the mentees.

• **To obtain detailed information, it is proposed to conduct follow-up surveys through various channels, such as telephone calls, emails, and social networks.** These surveys would address essential aspects, such as the completion of the career or the eventual dropout of studies, the continuity of studies (either at university or postgraduate levels in STEM areas) specifying the institution and the specialization area. In addition, the current work, position, and responsibilities would be investigated, providing a comprehensive overview of the trajectory of the mentees after participating in the program. This comprehensive approach to traceability evaluation not only serves as a tool for continuous improvement, but also supports transparency and financial support by demonstrating tangible and significant results.

Some indicators to consider:

Number of trainings implemented
Number of meetings between mentors
Percentage of quarterly and annual increase
Annual growth of enrollment
Scope definition

2.2 Suggestions for Mentorship Program Evaluation Instruments

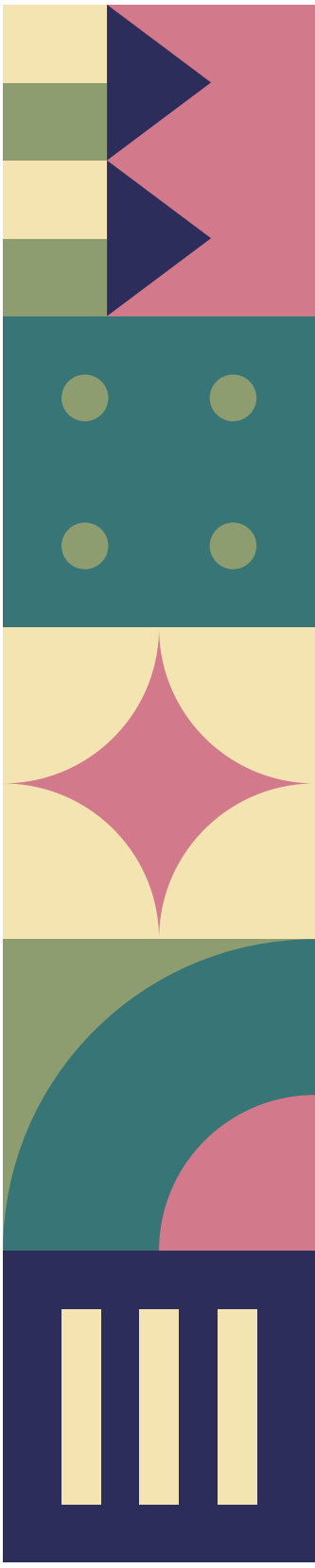
- **Mentee Experience Survey:**

  The attention/support of the mentors
  The highlights of the experience
  The weaknesses of the experience
  How the program made a difference, how it helped
  What practical elements can be improved.
  Comments, suggestions

- **Mentor Experience Survey**

  Did you feel prepared as a mentor?
  What do you think are the most important skills, competencies, and abilities to fulfill this role?
  Do you consider the trainings you attended to be sufficient?
  Was the number of sessions appropriate considering the duration of the mentorship?
  In case you encountered any difficulties during the mentorship period.
  Could you mention them to us?
  What would you improve about the experience?
  Would you recommend the Mentoring Program to more people? (can be from 1 to 10)

3. CONSIDERATIONS FOR SCALING THE PROGRAM



3.1 Why scaling?

First, it is essential to consider that the development of this type of program allows us to contribute to breaking the gender gap in STEM careers in Latin America. To achieve this goal, it is crucial to expand our scope of action. Additionally, scaling a mentorship program can have several benefits and strategic objectives. Here are some common reasons why organizations or initiatives may choose to scale their mentorship program:

Increased impact: Scaling the program allows reaching a larger number of people, which increases the positive impact on the community or target group. By reaching more individuals, we contribute to a more significant and sustainable change.

Greater geographic outreach: Scalability may involve geographic expansion, reaching communities or regions that were not initially covered. This facilitates the diversification of experiences and perspectives.

Resource optimization: By scaling, resource utilization can be optimized by implementing standardized and efficient processes. This allows for more effective management and a greater capacity to handle a larger volume of participants.

Generalized professional development: Scaling a mentorship program can contribute to the generalized professional development of a specific group, such as students, early-career professionals, or women in technology, for example.

Strengthening of partnerships: Expansion may involve the formation of new strategic alliances with other organizations or institutions. This not only increases the available resources, but it can also enrich the quality of the program.

Improved talent retention: Scaled mentorship programs can contribute to talent retention by providing a higher level of support and professional development, which, in turn, can increase satisfaction and retention of participants.

Continuous innovation: By scaling, innovations can be identified and applied in the design and implementation of the program. Diversification and expansion often lead to constant adaptation to meet the changing needs of the target audience.

Program recognition and dissemination: Scalability can generate greater recognition of the program at the local, national, or international level. This can attract more participants, mentors, and sponsors, strengthening the viability and influence of the program.

Adherence to institutional objectives: Scaling the program can be aligned with institutional objectives and mission. For example, if the organization aims to empower women in STEM, the expansion of the program can contribute to that purpose.

Alignment with changing needs: As the needs and challenges of the community change, scaling the program allows it to adapt and respond more effectively to these changes, ensuring that the program remains relevant and valuable.
In summary, the scalability of a mentorship program can drive a broader, more efficient, and sustainable impact, while addressing diverse needs and challenges as they evolve over time.

3.2 How to scale?

To scale our mentorship program, it is crucial to follow a comprehensive strategy that encompasses everything from seeking partnerships to international expansion. Here are key steps:

- **Seek strategic partnerships:**
  Explore partnerships with like-minded organizations to expand our reach and resources.
  Identify potential collaborators who share our goals and values.
  Carefully evaluate and select potential partnerships that strengthen our program.
  Look for collaborations that bring complementary resources and diversity of perspectives.

- **Define standardized processes:**
  Establish standardized intervention processes to ensure consistency and effectiveness of the program.
  Develop clear protocols that guide the interaction between mentors and mentees.

- **Implement a recognition system:**
  Consider certification for outstanding mentors as formal recognition of their contribution.
  Explore options for remuneration or incentives to motivate continued participation.

- **Conduct periodic methodological reviews:**
  Conduct periodic methodological reviews to adapt the program to the current context.
  Ensure that practices are effective and aligned with changing needs.

- **Communication and Outreach:**
  Organize workshops and events for students and other stakeholders.
  Use effective communication strategies to increase visibility and participation in the program.

- **Adaptation and Successful Replication:**
  Identify successful components of the program and replicate them in other areas or contexts.
  Develop a cross-cutting program that can be adapted to diverse audiences.

- **Standardization of Operations and Management Processes:**
  Establish standardized operations and management practices to optimize efficiency.
  Ensure consistency in the administration of the program across all locations.

- **Exploration of Other Mentorship Structures:**
  Consider the possibility of implementing different mentorship models to meet the specific needs of participants.
  Evaluate the feasibility of more flexible or specialized structures.

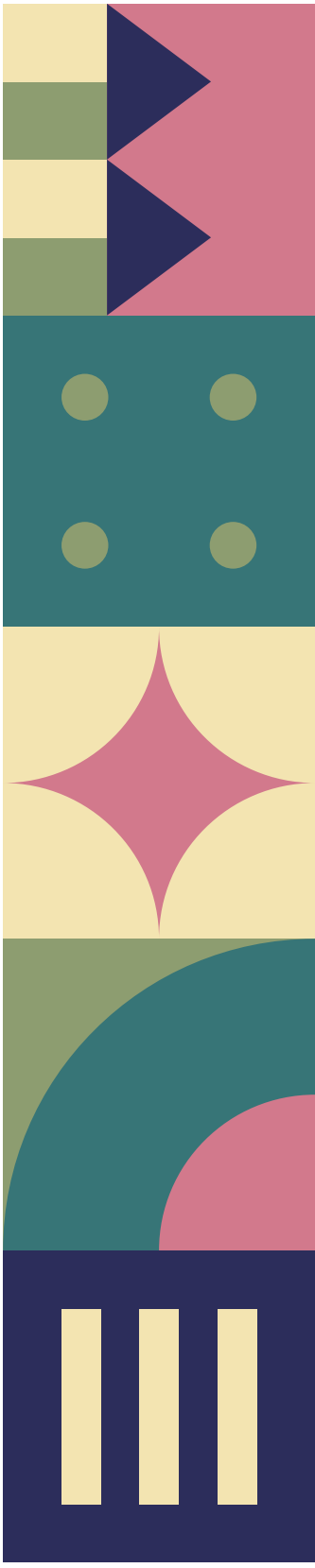
- **International Connections:**
  Explore opportunities to establish international connections that enrich the program.
  Seek global collaborations that bring cultural diversity and international perspectives.

By addressing these points, we are positioning our mentorship program to grow in a sustainable and effective way, ensuring a positive impact in the long term. To scale a program of this type, it is necessary to consider some key points that will allow us to achieve the scaling goal, if it is relevant and feasible.

3.3 Considerations for Scaling

- **Maintaining Quality:** Establish quality control mechanisms to ensure that growth does not compromise the integrity and effectiveness of the program. Implement continuous feedback systems from participants to identify areas for improvement.

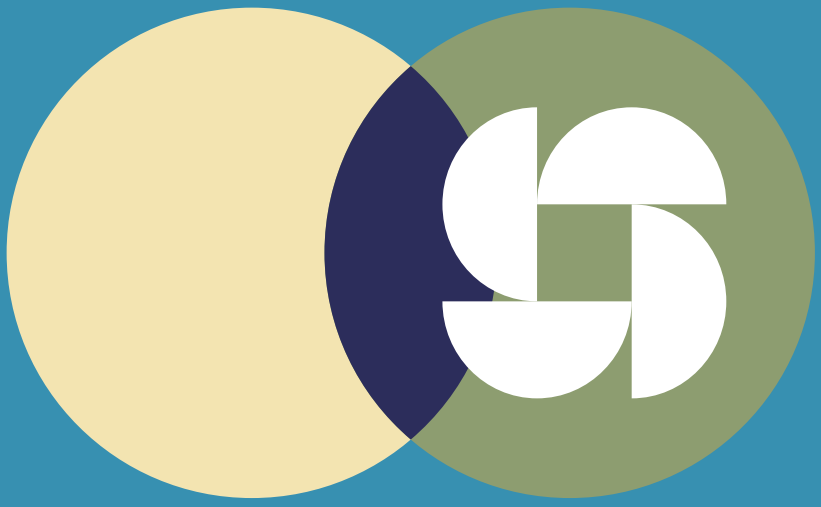
- **Setting Realistic Goals:** Define clear and realistic goals in terms of the number of mentors and mentees, considering the available human and financial resources. Evaluate the organization's ability to manage the program effectively at the desired scale.



• **Learning from Best Practices:** Review best practices documents and final reports of successful mentorship programs in other experiences, countries, or organizations. Adapt the lessons learned to the particularities and needs of the own context.

• **Designing a Networking Platform:** Develop an online platform that facilitates collaboration and information sharing between mentors, mentees, and other stakeholders. Include resources, reports, and tools to support the effective management of mentorships.

These strategic considerations can serve as a guide to ensure that the scaling of the mentorship program is an effective and beneficial process for all stakeholders.



Budget

To be able to carry out these programs successfully, it is essential to have the necessary funds for their operation. As explained above, the human and digital resources that must be considered.

CRITERION	DESCRIPTION
Human resources	• Leader: 10% of working hours during the mentorship period. • Coordinator: 50% of working hours during the mentorship period. • Content specialist: 20% of working hours during the mentorship period. • Communications coordinator: 20% of working hours during the mentorship period.
Mentor preparation	• Optional: Coaching session led by a communication and leadership coach.
Material resources	• Printing and preparation of complementary didactic materials such as manuals. • Communication tools.
Logistics	• Meeting rooms for the mentorships. • Food: Coffee break or lunch. • Travel expenses for the implementation of face-to-face mentorships.
Promotion and dissemination	• Publication in media. • ·Printed media.
Recognition	• For mentors: Courses/training or other according to the interests of the community. • For mentees: Diploma of recognition, workshops related to STEM areas or other according to the interests of the community.
Evaluation and monitoring	• Optional: Paid tools for conducting surveys and interviews. • Paid tools for conducting surveys and interviews.

There are various entities that offer competitive funds to implement and strengthen programs of this type. Below is a list of some options:

United Nations Development Program (UNDP)

This program aims to support sustainable development and poverty reduction worldwide. It offers different types of funding, including grants and loans, for projects that address issues such as gender equality, education, and innovation.

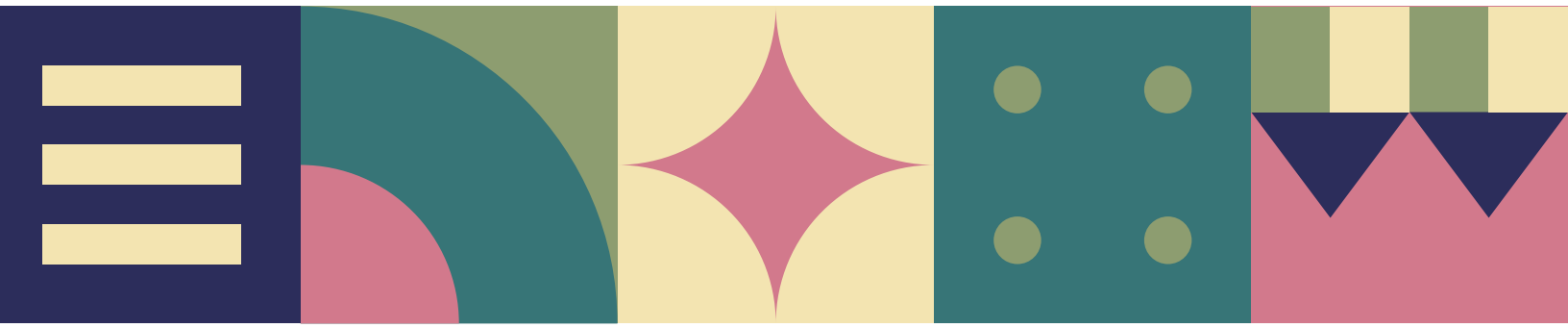
United Nations Educational, Scientific and Cultural Organization (UNESCO)

This organization aims to promote education, science, and culture worldwide. It offers different types of funding, including grants and awards, for projects that address issues such as gender equality, education, and culture.

United Nations Children's Fund (UNICEF)

This fund aims to protect the rights of children and promote their well-being worldwide. It offers different types of funding, including grants and loans, for projects that address issues such as education, health, and child protection.

The successful implementation of mentorship programs requires careful consideration of the necessary human, material, and financial resources. Assigning specific roles, preparing mentors, logistics, and promotion are critical elements that must be managed accurately to ensure the program's effectiveness. Ultimately, commitment to detailed planning and strategic resource seeking will enable not only the viability but also the ongoing success of mentorship programs.



CONSIDERATIONS FOR PROGRAM SUSTAINABILITY

For a program of this type to be sustainable over time, it is necessary to consider a series of factors that will have an impact on the way it is structured. Taking the following points into account will allow for the development of a program with a greater chance of success.

• The formal support of the institution where the program will be developed is needed to have a minimum of resources and personnel to implement it with the required quality. This support will declare that the organization considers this program necessary and part of its structure, not just a short-term project to be implemented once.

• The solid construction of a network, including both mentors and mentees, plays a crucial role in the sustainability of the project. Having referential figures, fostering the exchange of experiences, and accessing common information are benefits that significantly contribute to the success of the initiative.

• Training for mentors is presented as a key strategy to provide them with tools to strengthen and maintain the skills, competencies, and capabilities necessary to guide the mentoring work towards reducing educational gaps and facilitating future job insertion.

• For a program that includes mentoring to be sustained over time, it is essential to keep in mind that motivation is fundamental. Therefore, all actions aimed at fostering motivation are necessary for the program's success.

Facilitating and maintaining fluid and effective communication between mentors and mentees throughout the project through various channels is essential. This allows both parties to stay up-to-date with the required information and feel part of the process.

Generating an incentive plan could be a great contribution to avoiding the desertion of mentors and mentees. This does not necessarily refer to monetary incentives; certifications, participation in workshops, seminars, and workshops can also be considered.

• It is fundamental that throughout the process, the actions carried out and their results are documented in detail to effectively manage the problems and challenges that could arise in a new cycle. Continuous improvement of the project requires documentation and evidence, not only for the specific mentoring program but also for all the processes that underlie it.

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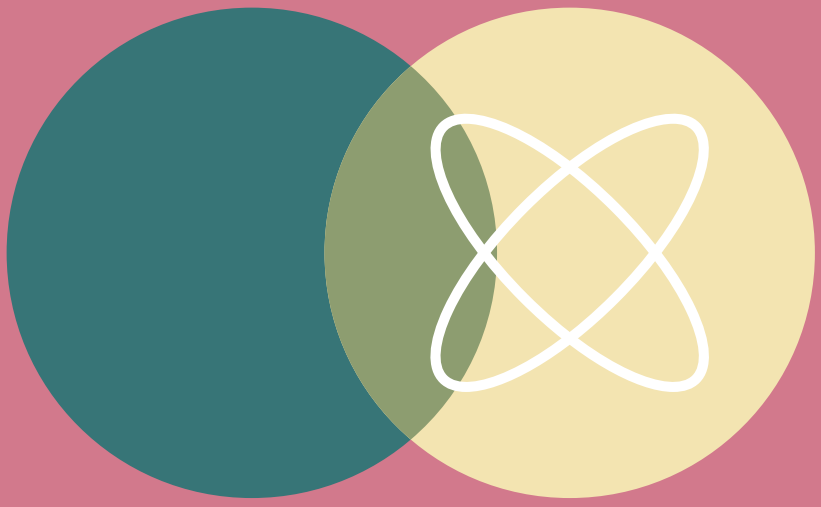

Appendixes

Appendix 1

BIWEEKLY FOLLOW-UP SURVEY

Dear mentors and mentees, we appreciate your participation in our mentoring program. Your feedback is essential to ensuring a successful mentoring experience. Please take a moment to answer the following questions about the progress and effectiveness of your mentorship.

I. General Information:

1. Mentor's full name:
2. Mentee's name:
3. Follow-up date (biweekly)

II. Mentoring Progress:

4. Have you been able to carry out the mentoring sessions as planned in this biweekly period?

Si	No	Partially

5. Can you share any significant achievements or progress you have experienced during the biweekly period in your mentorship, either as a Mentor or Mentee?

II. Satisfaction with the Process

6. Please rate your overall satisfaction with the mentoring process during this biweekly period on a scale of 1 to 7 (1 being very dissatisfied and 7 being very satisfied).

1	2	3	4	5	6	7

5. How many meetings or interactions have you had with your mentor or mentee during this biweekly period?

IV. Improvements and Suggestions

10. Do you have any suggestions or recommendations for improving the mentoring program in future editions? This could include aspects such as the matching process or any other relevant aspect.

We sincerely appreciate your participation and your detailed feedback. Your contribution is essential to the continued success of our mentoring program.

Appendix 2

MENTORSHIP EXPERIENCE SURVEY

Dear mentor, we appreciate your participation in our mentorship program. Your feedback is valuable and will help us to improve continuously. Please answer the following questions honestly.

I. General Information

1. Full name (optional):
2. Topic worked on:
3. Duration of your participation as a mentor (in months):

II. Motivations

4. What were the main reasons or motivations that led you to become a mentor in our program?

5. Are there any personal or professional experiences that influenced your decision to become a mentor?

6. As the mentoring program progressed, how did your initial motivations and expectations evolve?

7. What have been the most rewarding or surprising aspects of your experience as a mentor?

III. Mentoring Experience

8. Please rate your overall experience as a mentor in the program on a scale of 1 to 7 (1 being very unsatisfactory and 7 being very satisfactory).

1	2	3	4	5	6	7

9. How would you describe the attention and support you provided as a mentor in the program? (Provide specific details about the quality of communication, the support provided, and any other relevant aspects).

10. Mention three highlights of your experience as a mentor in the program:
a. _____
b. _____
c. _____

11. Mention three areas where you think the mentoring could have been more effective or could be improved:
a. _____
b. _____
c. _____

IV. Impact of the program

12. How do you think your participation as a mentor has impacted your mentees? Provide specific examples if possible.

13. What personal or professional benefits have you experienced as a mentor in the program?

V. Improvements and Suggestions

14. Considering your experience as a mentor, what practical improvements or specific changes could we implement to make the program even more effective?

15. Is there anything else you would like to share about your experience as a mentor of the mentoring program?

VI. Final comments

16. Would you be able to continue participating as a mentor in future instances of the program?

17. Would you recommend the Mentoring Program to more people?

Appendix 3

MENTEE EXPERIENCE SURVEY

Dear mentee, your opinion is fundamental to us. We sincerely appreciate your participation in our mentoring program and invite you to share your thoughts and experiences to help us improve. Please take a moment to answer the following questions.

I. General Information

1. Full name:
2. Topic worked on:
3. Name of your mentor:

II. Mentorship Experience:

4. Please rate your overall satisfaction with the mentoring program you received on a scale of 1 to 7 (1 being very unsatisfactory and 7 being very satisfactory).

1	2	3	4	5	6	7

5. How would you describe your experience in the mentoring program so far? Please provide details about what you have found most positive or negative.

6. Are you clear about your goals for the mentoring you received and how they are being worked on during the process?

7. How would you rate the quality of the communication and support provided by your mentor? Has it been effective and satisfactory?

8. Do you feel that you have had the opportunity to express your needs and expectations to your mentor during the mentoring?

III. Learning and Development

9. What skills or knowledge have you acquired or improved through your participation in the mentoring program?

10. What aspects of your personal or professional development do you think have benefited most from the mentoring?

IV. Improvements and Suggestions

11. Do you have any suggestions or recommendations for improving the mentoring program in future editions? This could include aspects such as the matching process or any other relevant aspect.

We sincerely appreciate your participation and your detailed feedback. Your contribution is essential to the continued success of our mentoring program.

Appendix 4

APPLICATION TEST

Matching: This can be done using Google Forms, Microsoft Forms, or another platform.

Applicants interested in participating in the mentoring program can answer the following questions:

1. What is your experience in the STEM field?

a) None.
b) Little.
c) Moderate.
d) Extensive.

2. What are your academic and professional goals?

a) Finish high school.
b) Enter higher education.
c) Graduate from higher education.
d) Develop a career in STEM.

3. What skills and knowledge can you share with your mentor/mentee?

4. What type of mentoring would you like to have?

a) Institutional.
b) Student.
c) Peer-to-peer.
d) International

5. What do you hope to gain from the mentoring relationship?

a) Academic support.
b) Professional development.
c) Career guidance.
d) Other (please specify)

6. How do you feel about working with someone you don't know beforehand?
7. How would you describe your communication and teamwork style?
8. What challenges have you faced in your academic or professional career?
9. How have you overcome these challenges?
10. What resources or tools do you think would be helpful in supporting your academic and professional development?

Appendix 5

PROPOSED CONTENT FOR MENTOR TRAINING PRIOR TO MENTORING CYCLES

1. Introduction to Mentoring
a) Basic concepts of mentoring
b) Types of mentoring
c) Benefits of mentoring

2. Communication Skills
a) Empathy
b) Active listening
c) Assertive communication

3. Facilitation Skills
a) Goal setting
b) Powerful questions
c) Conflict resolution

4. Leadership Skills
a) Motivation
b) Teamwork
c) Time management

5. Ethics of Mentoring
a) Confidentiality
b) Respect
c) Self-care

Extra Recommendation:
Coaching

Mentors could receive the following coaching support.

- Personal coaching: Throughout the program. The coach will help them develop their mentoring skills and prepare for the mentoring role.
- Communication coaching: Group coaching session where they address all the material they need to transmit to the mentees, with the coach who will help them so they can transmit their message in the best way.

Appendix 6

SUGGESTED STUDIES FOR TRAINING CONTENT

The issue of gender equality in STEM has been widely studied by academics, researchers and international organisations. Below are some specific examples of studies on gender equity issues in STEM fields:

A study conducted by the Organisation for Economic Co-operation and Development (OECD) in 2020 found that women represent only 28% of university graduates in STEM careers in OECD countries. The article can be found here.

'Women in Science, Technology, Engineering and Mathematics in Latin America and the Caribbean', prepared by Alessandro Bello and published by UN Women in May 2020. The document compiles and analyses the main experiences and initiatives implemented to promote the participation of women and girls in the STEM sector in Latin America and the Caribbean. The study highlights the importance of addressing the gender gap in STEM areas and provides recommendations to promote gender equality in education and employment in these areas. The article can be found here.

A study conducted by Stanford University in 2021 found that women working in STEM areas experience more harassment and discrimination than men. The article can be found here.

Sevilla and Snodgrass Rangel (2022) analyse career development in highly gender-typed postsecondary vocational-technical education programmes using a social cognitive analysis framework. It examines how social beliefs and expectations influence students' career choices and performance in these programmes. The authors discuss strategies for improving gender equity and support in these educational settings. The article can be found here.

The article by Sevilla, Snodgrass Rangel and González (2023) explores the motivational beliefs of women in post-secondary vocational-technical STEM education in Chile. It uses empirical data to analyse the factors that influence the motivation and persistence of these students. The findings highlight the importance of a supportive environment and self-efficacy in women's educational success in male-dominated fields. The article can be found here.

In Snodgrass Rangel et al. (2021) investigate the motivations of mentors in STEM mentoring programmes. Through qualitative analysis, factors such as desire to give back, professional and personal development, and passion for teaching are identified. The findings highlight the importance of recognising and supporting these motivations to improve the effectiveness of STEM mentoring. The article can be found here.

PARTICIPANTS

BRASIL

CONIF (Conselho Nacional das Instituições da Rede Federal de Educação Profissional, Científica e Tecnológica)
Flavia Silva Cunha - flaviacunha@ifba.edu.br
Sylvana da Silva de Lemos Santos - sylvana.santos@ifb.edu.br

CHILE

Duoc UC
Alejandra Shaw Dick – ashaw@duoc.cl
Alejandro Molina Torres – amolina@duoc.cl
Carolina Ojeda Díaz - jea.ojeda@profesor.duoc.cl
Claudia Barrientos Pereira - cla.barrientos@profesor.duoc.cl
Miyalí Abarca Colileo - miy.abarca@duocuc.cl
Myrle Suárez de Rosas - msuarezd@duoc.cl
Natalia Palacios Raipan - npalaciosr@duoc.cl
Romina Cayumil Montecino - rcayumilm@duoc.cl
Sandra Henríquez Catalán - s.henriquez@profesor.duoc.cl
Soledad Raña Johnston - mranaj@duoc.cl
Victoria Traverso Castro - vtraversoc@duoc.cl

Ministry of Education, Higher Education Undersecretariat
Bastián Torres Salgado - bastian.torres@mineduc.cl

PARAGUAY

Fundación Paraguaya
Vanessa Silvana Ortega - vortega@fundacionparaguaya.org.py
Valentina Santander Estigarribia - zvsantander@fundacionparaguaya.org.py

URUGUAY

INEFOP (Instituto Nacional de Empleo y Formación Profesional)
Virginia Baquet Mendilazo - vbaquet@inefop.org.uy

ACKNOWLEDGMENTS

Virginia Snodgrass Rangel - Visiting Expert

Nicolás Álvarez - Researcher

UNESCO UNEVOC

unesco

International Centre for
Technical and Vocational
Education and Training