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Empowering women in science: A good practice guide

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Abstract. Empowerment can be thought of as a gain of power and autonomy by an unfavored group, which creates a better situation. Women in Science (WIS) face multiple barriers that ultimately affect their performance. There is an urgent need to reverse the inequalities and disadvantages that WIS face. With this aim, in May 2023, 17 WIS gathered in person for four days in a workshop entitled Empowering Women in Science. As an outcome of the workshop, we cooperatively started to draw up a list of empowerment recommendations. We continued working together for more than a year to improve this list, which we now present as the Good Practice Guide for Empowering Women in Science (GPG). The GPG contains recommendations across the individual, collective and system levels that we believe help address inequalities for WIS. The aim of this debate is twofold: a) to present the GPG and b) to use the GPG to self-evaluate the number of actions we, the authors, undertook before and after participating in the workshop. Results show that one year after ending the workshop, we doubled the number of actions performed across all categories assessed: I) identify, confront and make visible systemic barriers; II) self-promotion; III) promote other women, and IV) foster diversity, equity and inclusion. This suggests that empowerment can be fostered through formal training programs and discussion spaces. We hope that the GPG will inspire WIS across disciplines and backgrounds to: A) act towards empowerment (at the individual, collective and system level); B) embrace the notion that each of us can be part of the change that we want to see happening towards higher equity for WIS, and C) recognize that any action is better than inaction. Finally, the GPG provides a framework that will continue to be improved and expanded with the feedback of readers and users.

[Keywords: emancipation, gender, systemic barriers, recommendations, caregivers, equity, self-confidence, self-promotion, self-visibility, leadership]

Resumen. Empoderando a las mujeres en ciencia: Una guía de buenas prácticas. El empoderamiento puede entenderse como un incremento en el poder y la autonomía de un grupo desfavorecido para lograr una situación mejor. Las mujeres en la ciencia (MEC) enfrentamos múltiples barreras que, en última instancia, afectan nuestro desempeño. Existe una necesidad urgente de revertir las desigualdades y las desventajas que enfrentamos las MEC. Con este objetivo, en mayo de 2023, 17 MEC nos reunimos de manera presencial durante cuatro días en el taller Empoderando a Mujeres en Ciencia. Como cierre del encuentro, comenzamos a elaborar una lista de recomendaciones de empoderamiento, que continuamos mejorando y que ahora presentamos como la Guía De Buenas Prácticas Para El Empoderamiento De Mujeres En Ciencia. La guía contiene recomendaciones a nivel individual, colectivo y de sistema; creemos ayudan a emancipar a las MEC. El objetivo de este debate es doble: a) presentar la guía y b) utilizar la guía para evaluar las acciones que nosotras, las autoras, emprendimos antes y después de un año de finalizar el taller. Los resultados mostraron que duplicamos el número de acciones realizadas en todas las categorías analizadas: I) identificar barreras sistémicas; II) autopromoción; III) promover a otras mujeres, y IV) fomentar la diversidad, equidad e inclusión. Estos resultados sugieren que el empoderamiento puede fomentarse a través de programas de capacitación y de espacios de discusión. Esperamos que esta guía inspire a MEC de todas las disciplinas a: A) actuar hacia el empoderamiento (a nivel individual, colectivo y de sistema); B) adoptar la noción de que cada una de nosotras puede ser parte del cambio hacia una mayor equidad para las MEC, y C) reconocer que cualquier acción es mejor que ninguna acción. Finalmente, la guía brinda un marco de acción que continuará siendo mejorado con la retroalimentación de quienes la utilicen.

[Palabras clave: barreras sistémicas, emancipación, género, recomendaciones, cuidadoras, equidad, autoconfianza, autopromoción, visibilidad, liderazgo]

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Introduction

Women in science (WIS) encounter numerous barriers and disadvantages, whose cumulative impacts are well documented across a variety of professional areas. The achievements of WIS are under-recognized and credit for their work is often attributed to male colleagues (Saborit-Rodriguez et al. 2022). WIS are disproportionately burdened with mentoring responsibilities, which are critical academic tasks that seldom receive the same recognition as other research activities (Woolston 2020). WIS face various forms of sexism, harassment and discrimination that adversely affect their mental and physical health, career progression and overall well-being (Howard et al. 2024). WIS also face confidence barriers compared to men and are more likely to experience impostor syndrome (Bravata et al. 2020), discuss and comment less frequently or later during conferences (Chautard and Hann 2019), exhibit lower assertiveness in promoting their work (Garr-Schultz et al. 2023) and demonstrate higher levels of risk aversion (Croson and Gneez 2009). WIS often publish less, obtain fewer grants and prizes and get fewer promotions than men (Nature 2023). A limited number of WIS apply for scholarships, internships and prize opportunities (Cuny and Asprey 2002). The impact of the above-mentioned barriers becomes evident in the smaller proportion of WIS occupying high-ranking positions (Nocetti et al. 2018), their delayed arrival in high-ranking positions compared to men and the low number of scientific women in leadership positions compared to the number of female science students (O´Brien et al. 2019).

WIS that are mothers (WISM) face unique challenges, including increased caregiving loads, increased teaching loads and limited institutional support (e.g., restricted access to childcare, inadequate breastfeeding facilities and inflexible scheduling) (Torres et al. 2023). WISM also face an increased risk of depression, particularly when they assume primary caregiving responsibilities, care for children with health or learning conditions, or lack a supportive social network (Rocha et al. 2025). WISM participate less in international training (Nocetti et al. 2018) probably due to difficulties in family logistics. Pronounced inequities in parental leave policies have an additional negative impact on the performance of WISM (e.g., mothers in Argentina receive three months of maternity leave compared to only two days for fathers). Also, WISM suffer a 'parenthood effect' which manifests as lower scientific output and, consequently, slower advancement for researchers with children, compared to those without children (Pérez et al. 2024).

There is an urgent need to advance equity in science and reverse the barriers and disadvantages that WIS confront. Intending to empower WIS, in May 2023, 17 Argentinean scientists from diverse backgrounds, institutions and career stages gathered in person for a four-day workshop entitled Empowering Women in Science. Empowerment can be defined as an unfavored group gaining power and autonomy to improve their situation. During the workshop, we examined the barriers that WIS and WISM face and worked on developing skills to help us overcome them and improve our performance. The activities included sessions and discussions on leadership, mentoring, conflict resolution, time management, funding and networking. The workshop concluded with a collaborative effort to formulate a list of empowerment recommendations that resulted from our discussions. This evolving document is presented here as the Good Practice Guide

for Empowering Women in Science (GPG), and contains recommendations operating at the individual, collective and systemic levels. The GPG is grounded in our personal and shared experiences as WIS, our diverse backgrounds, and our intersectional identities, and so reflects our personal experiences or situated and subjective knowledge (Haraway 1988; Jaggar 2008).

The aim of this debate is twofold: a) to present the GPG (section A) and b) to demonstrate the use of the GPG through a self-evaluation of the actions undertaken by us, the authors, before and one year after participating in the workshop (section B).

Section A. Presentation of the GPG for Empowering Women in Science

The Good Practice Guide for Empowering Women in Science contains recommendations across individual, collective and system levels. The recommendations at the individual and collective levels span four axes: I) identifying, confronting and making visible systemic barriers; II) self-promotion (self-visibility, self-confidence, and leadership); III) promoting other WIS, and IV) fostering diversity, equity and inclusion (DEI). The recommendations at the system level span three axes: a) DEI; b) promoting WIS, and c) supporting caregivers.

Individual and collective levels

Individual actions can trigger significant changes and have a catalytic effect at larger scales. By being aware of our attitudes, biases and strengths, we can generate positive and impactful changes (Lau et al. 2023). Moreover, raising our voices collectively (e.g., in groups, networks, societies) can exert significant and lasting changes in the structure of the scientific system. The recommendations at the individual and collective levels are presented below.

I. Identifying, confronting and making visible systemic barriers (the first step towards change is making barriers visible). 1) Learn about gender issues through courses, literature, discussion groups and dialogue spaces. 2) Generate opportunities for discussing gender, diversity and inequalities (e.g., courses, conferences, laboratory meetings, workshops). 3) Collect and showcase data that highlights gender equity/inequity in our workplaces and academic careers. Quantitative data can help: a) to reveal how inequality is produced and reproduced and to design concrete ways to disarm that inequality; b) to convince administrations to consider changes (Stachl 2021), and c) to enable monitoring of the effect of interventions towards equity. 4) Publish about personal and/or collective gender issues (e.g., barriers faced as women and mothers in science) in scientific or public outlets and social media. This can inspire and support other WIS going through similar situations, provide visibility of the obstacles that WIS face, encourage brainstorming of solutions and create a sense of community. 5) Be aware of unconscious associations between concepts and gender (e.g., gender stereotypes regarding professions and duties, gender roles). An implicit 'Association Test' can be taken at mplicit.harvard.edu/implicit/takeatest.html. 6) Include your status as a parent in your curriculum vitae, including the number of children, their ages and maternity leave time. This helps in assessing caring loads during evaluations. 7) When writing self-evaluations or evaluating others, mention the challenges faced and what was achieved despite these barriers (A4BL 2022). This can help raise awareness of the barriers faced so that reviews are assessed more equitably. 8) When occupying positions of power (e.g., council members, evaluation committees), advocate for change towards dismantling systemic barriers (e.g., discuss how performance is assessed and rewarded, apply a correction factor for mothers) (Parent in Science Movement 2021). 9) Work towards stopping sexist comments by trying to make sure they don't go unnoticed. Do not ignore or passively accept sexist comments to avoid discomfort. Answer these comments with phrases such as: "That comment is out of line" or "You would never say that to a man". 10) Report, through your institutional support channels, incidents of discrimination, sexual violence, harassment situations and abuse of power suffered by yourself or other colleagues. 11) Raise awareness of the mechanisms and offices dedicated to addressing and preventing discrimination and violence within our institutions.

II. Self-promotion. Self-visibility: Making yourself and your work visible to others. 12) Participate in conferences, workshops and meetings. Conferences are an avenue to present research, network, foster collaborations and

raise your profile and career development (Oester et al. 2017). 13) Make your voice heard in meetings and conferences (e.g., speak up, ask questions). This can help to raise a scientist's profile by showing their interest and can lead to further conversations (Gulland 2022). 14) Accept invitations to give lectures and plenary talks at conferences. 15) Accept invitations to participate in radio and TV programs and in newspaper interviews. 16) Apply for national and international grants. 17) Apply for national and international awards. 18) Apply for professor positions and department heads. 19) Occupy decision-making positions (e.g., evaluation committees, boards in scientific societies, editorial boards). This can generate changes in work dynamics, increasing the diversity of opinions and encouraging other WIS to occupy these spaces. 20) Participate in social media (e.g., podcasts, websites) where you can show your profile, ongoing work and achievements. 21) Show your ongoing projects (e.g., at conferences, classroom, on social media). This helps highlight the value of the process instead of only focusing on the final product (e.g., scientific article). 22) Promote your publications (e.g., by circulating them among those you cite, your network and social media). 23) Include your publications and work in your talks, courses and workshops when pertinent.

Self-confidence: Having confidence in yourself and your abilities. 24) Work on the ability to name your technical and soft skills in front of others (e.g., "I pose interesting research questions", "I am good at solving problems"). 25) Identify the 'impostor syndrome' (i.e., self-doubt about your abilities and fear of being a 'fraud' despite competence) and adopt strategies to build self-confidence. These include acknowledging your feelings, reframing negative thoughts, celebrating your successes and practicing self-compassion. 26) Avoid the 'tokenism' (e.g., feeling you were selected to fulfill a diversity quota) and recognize the qualifications and achievements that led you to your current position.

Leadership: Self-leadership and leading others. 27) Train yourself in 'soft skills' relating to how you interact with others (e.g., teamwork, time management, conflict resolution, leadership, emotional intelligence, critical thinking). These skills are helpful in the workplace, help to increase self-confidence and help to decrease risk aversion (Lau et al. 2023). 28) Take care of the balance between your personal (physical and mental health, family, community) and professional lives. This includes paying attention to your mental health (e.g., burnout, impostor syndrome, stress, masking mental health issues, depression), practicing sports and/or creative activities, attending health check-ups, meeting your loved ones, organizing your priorities, making time for your passions and learning to say no. 29) Recognize yourself as a leader or future leader (e.g., strengths, ability to inspire others) regardless of your position, title, personality and leading style. 30) When in a group leader position, help to establish and communicate plans to your team, foster an environment where feedback is given and received, and try to be a model of the behavior you expect from others.

III. Promote other women in science. 31) Collect information about WIS in your field and make their trajectories visible (e.g., publications, outreach, talks). This will raise awareness of WIS and can be an opportunity to illustrate the diversity of role models for female scientists. Examples of such compilations at the international level are: women in limnology (tinyurl.com/4d7jeezv), women in paleontology (tinyurl.com/cyupyf6p), women in chemistry (tinyurl.com/26cxvcsa), women in astronomy (tinyurl.com/6uc3braf), women in ecology (tinyurl.com/2r29krrk) and women in engineering from Latin America (catedramatilda.org), among others. Examples of compilations of the work of Argentinean WIS include: women in botany (tinyurl.com/4vbjj54s), women involved in science and technology in Argentina (www.cientificasdeaca.com) and Naturalists: 16 stories of talented and rebellious women scientists (tinyurl.com/4ps2ys7v). 32) Use the contributions made by WIS in classrooms, seminars and conferences. If applicable, mention the sociocultural context or obstacles that these women faced (CLEAR 2021). If you teach or conduct workshops, include the work done by WIS in the program's bibliography. This will help to improve recognition of their research and foster visibility of their studies. 33) Include WIS among suggested reviewers, evaluation committees, funding panels, plenary talks and thesis boards. 34) Follow WIS on social media and promote/repost their publications and achievements. 35) Participate in events where WIS are visible (e.g., science exhibitions, discussion sessions). 36) Participate in commemorations and mobilizations that support women and

women's rights. 37) Build or join formal and/or informal groups that advocate for systemic changes for WIS. Examples of such groups are: Mothers in Science (www.mothersinscience.com), Parents in Science (www.parentinscience.com), Latinoamerican Association of Women in Oncology (www.asociacionalamo.org), ArgPlantWomen (argplantswomen.weebly.com) and Ciencia Fem (www.instagram.com/cienciafem_/). 38) Foster and participate in mentoring WIS (e.g., providing guidance, support and advice about achieving professional and personal goals) in formal and informal formats. Mentoring relationships are crucial to the retention, success and well-being of women mentees in academia (Deanna et al. 2022).

IV. Foster diversity, equity and inclusion. 39) Use inclusive language in oral and written communications. In gendered languages (e.g., Spanish, French) include both the feminine and masculine gendered words. Choose to place the feminine word before the masculine one (e.g., in Spanish, say "tutora o tutor", instead of "tutor o tutora"). 40) Include a gender perspective when teaching. For example: a) consider gender differences in students' opportunities: b) show gender-related barriers; c) use inclusive language, and d) include examples of women as role models. The gender perspective should be considered in all aspects of teaching: oral classes, assignments, tests, question and answer sessions and bibliography. A test for gender fair classes can be found in tinyurl.com/mrt5ecjt. 41) When organizing scientific events (e.g., conferences, workshops), check for gender balance, inclusiveness and equity. Advocate for the presence of WIS at plenary talks, avoid panels exclusively composed of men (i.e., 'manels') and panels exclusively composed of women (Chautard and Hann 2019). Use inclusive language and seek equal participation opportunities in terms of attendance, funding and childcare. Provide opportunities to discuss gender through formal or informal formats. 42) When acting as a coordinator (e.g., conference sessions, symposia, committees), take the first question from a woman or a young person. This encourages a more diverse participation in the answer and question section, which otherwise is dominated by men (Chautard and Hann 2019; Gulland 2022). 43) Engage male colleagues in the gender agenda (e.g., colleagues should acknowledge that all-male panels are not acceptable). This helps to change the cultural mindset.

System level

Achieving greater equity and empowerment for WIS requires transformation at the system level. This involves implementing long-term national/global policies that dismantle systemic barriers.

The list of recommendations of the system level spans three axes: I) diversity, equity and inclusion; II) promoting women in science, and III) supporting caregivers.

I. Diversity, equity and inclusion. 44) Promote the creation of DEI committees in scientific institutions. While gender inequity may not be deliberate, addressing it must be intentional. Sustainable actions towards gender equity require institutional planning and funding. 45) Compile statistics on gender diversity (e.g., female, male, non-binary, trans, etc.) to generate public policies for DEI. 46) Revise the current instruments designed to alleviate gender gaps and provide improvements when needed. 47) Increase the implementation of programs for gender perspective training and gender-based violence training. These might promote gender bias habit-breaking, raise awareness and reduce unintentional biases (Lau et al. 2023). 48) Fund DEI initiatives. 49) In grant applications, assess if a gender perspective is considered in the proposed study and the composition of the research group. Assess the gender of those who apply and obtain the grants. 50) Reimagine how performance is assessed and rewarded (O´Brien et al. 2019). Reward a broader range of contributions, including non-research contributions that impact scientific work (e.g., mentoring, outreach and DEI actions). Consider extra-curricular activities or volunteer experience that demonstrate a commitment to supporting WIS (compiled in Torres et al. 2023).

II. Promoting women in science. 51) Promote the participation of WIS in leadership roles and decision-making positions. Foster gender-balanced leadership where the proportion of female scientist leaders matches the proportion of female science students (O'Brien et al. 2019). Increased representation of WIS in leadership positions provides role models for younger women and changes the social structures that favor men (Lau et al. 2023) and male leadership styles. 52) Establish quotas for WIS in high-ranked positions. 53) Monitor compliance with gender quotas in committees, boards of directors, electoral candidate lists, etc. 54) Implement regulations

that ensure the presence of at least one WIS as a member in a jury (e.g., thesis defense, teaching evaluation).

III. Supporting caregivers. 55) Support women during pregnancy, fertility treatments and adoption (Sebastián-González et al. 2023). 56) Promote equality between maternity and paternity paid leave (also in cases of adoption). This helps fathers to engage in parenthood (Parents in Science Movement 2021) and eases caregiving loads for women. 57) Make it mandatory to identify as a parent in Human Resources management systems and include a section for recording previous absences from work due to maternity leave. The latter can then be used to assess productivity gaps. This has been implemented in Brazil since 2021 (Parent in Science Movement 2021). 58) In Human Resources management systems, consider registering the health situations of dependent children who may have additional needs that extend for long periods, increasing the level of care they require. For example, disabilities (e.g., autism), illnesses (e.g., diabetes) and conditions that affect reading and writing (e.g., dyslexia). 59) Consider using a 'maternity clause' when assessing the productivity of WISM. Either provide extensions on grants and evaluation deadlines or establish a correction factor (Parent in Science Movement 2021). 60) Promote greater work flexibility for caregivers and increase the amount of time for remote work. Allow caregivers to choose the teaching time slots first, as evening classes are challenging for family dynamics. Also, foster the organization of meetings during school hours. 61) Promote the presence of lactation rooms in spaces where students and researchers study, work and share results. Breastfeeding women need support from their institutions. 62) Promote the establishment of childcare centers in spaces associated with academia. Provide enough vacancies and affordable prices (Sebastián-González et al. 2023). If that is not possible, advocate for financial assistance to cover childcare expenses. Indeed, the existence of childcare facilities leads to a higher labor participation of WIS across all countries (Revenga and Muñoz Boudet 2017). 63) Advocate for allocating spaces to receive children and young people during vacation periods, as parents continue to work during their kids' vacations. Provide enough vacancies and affordable prices (Sebastián-González et al. 2023). If this is not possible, advocate for financial assistance to cover these expenses. 64) Promote financial support for caregivers (e.g., daycare expenses). 65) Generate special grants for WISM (e.g., research, conferences) during the early years of their children's lives (Torres et al. 2023). Include funding to hire technical support for research or fieldwork during pregnancy and caregiver leave (including leave for miscarriage or fertility treatment). 66) When providing funds for organizing conferences, foster childcare support for parents. Not having affordable and accessible childcare during conferences limits the advancement and opportunities for collaboration for those with young children, affecting more women than men (Parker 2018).

Section B. Putting the GPG into practice

To self-evaluate our empowerment, each of the 17 workshop participants completed the Good Practice Guide at the individual level, once 'before' and once after one year of ending the workshop. Note that collective and institutional level actions were excluded from self-evaluation as these are more complex or imply system approaches to foster empowerment. Because we produced the GPG after the workshop, the assessment run 'before' was done to the best of our knowledge. We assigned to each recommendation a value of 1 when the action was performed and a 0 when it was not. The results showed that one year after ending the workshop, on average, we doubled the number of actions performed in all four axes assessed (Figure 1). In particular, actions that were almost nonexistent before the workshop, became frequently undertaken afterwards, such as action 6 (include the parental status in the CV for those participants that were mothers), action 7 (in self-evaluations and others-evaluations report the barriers faced and the achievements despite barriers), action 23 (the inclusion of own publications in talks), action 24 (practice naming your technical and soft skills) and action 42 (when acting as a coordinator in conferences, meetings, take the first question from a woman or a young person) (Figure 1). Other recommendations would require further career advancement to be fully implemented (e.g., action 8 [recognize barriers when in power positions], action 14 [accept giving plenary lectures at conferences] and action 18 [apply to professor positions]. Also, occupying decision-making roles is needed for actions 19 [take on leadership positions] and 30 [as a leader provide feedback and foster communication within your group]) (Figure 1).

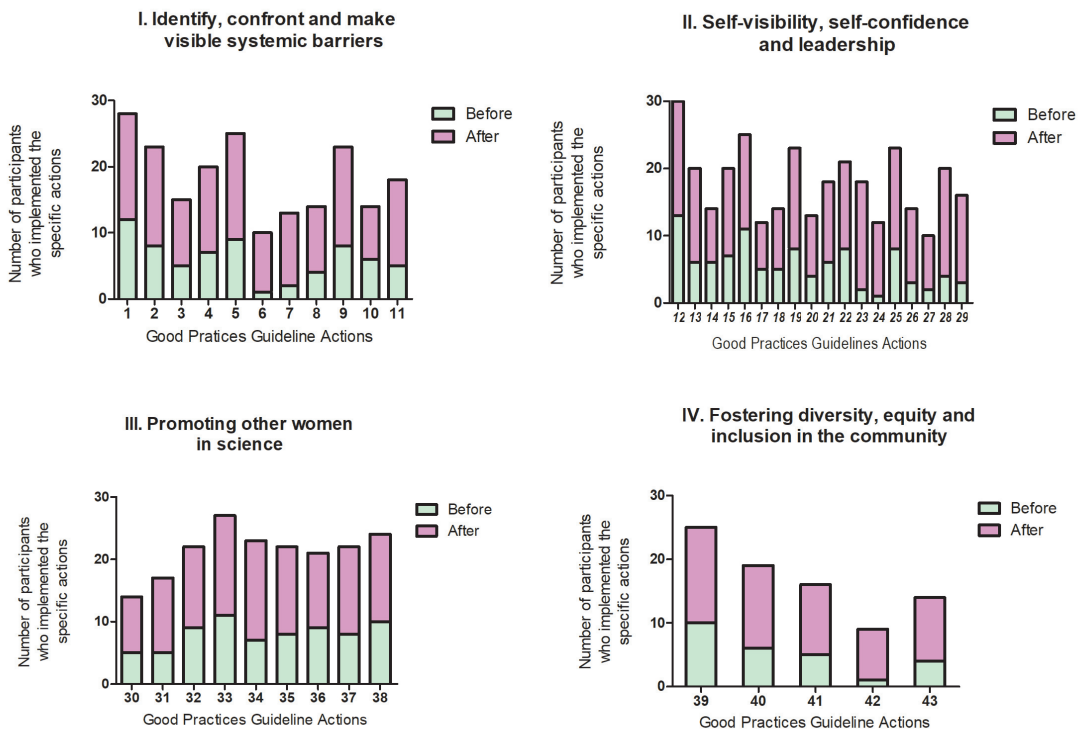

Figure 1. Participants who implemented the recommendations proposed in the Good Practices Guideline, before and after participating in the workshop Empowering Women in Science, across the four axes assessed (n_{max}=17).

Figura 1. Cantidad de participantes que implementaron las recomendaciones propuestas en la Guía de Buenas Prácticas, antes y después de participar en el taller Empoderando a las Mujeres en la Ciencia, en los cuatro ejes evaluados (n_{max}=17).

Discussion

The GPG offers a set of more than 60 actions designed to help WIS to emancipate from systemic and confidence barriers. These recommendations emerged from discussions held during the Empowering Women in Science workshop, where topics such as leadership, mentoring, conflict resolution, time management, funding and networking were discussed. The GPG was further enriched by our diverse identities and collective experiences.

The GPG incorporates and expands insights found in other best practice frameworks on gender equity, gender and education and inclusive workspaces (tinyurl.com/mry4r58j). The GPC aligns with ongoing empowerment initiatives in Latin America, such as the website and podcast The Matilda Effect (www.catedramatilda.org), the book Reimagining STEAM from the diversity (Lopez et al. 2024) and research and opinion articles (Bernal et al. 2019; Lara-Prieto et al. 2023). Additionally, it contributes to this special issue, which records the progress in the study of the gender dimension in ecology. Cumulatively, this amplifies the voices and actions of women in science from Latin America.

The GPG is structured as a list of recommendations at individual, collective and system levels, and it could function as a practical tool for a baseline empowerment diagnosis. For example, users can assign a score of 1 if the recommendation is met and 0 if it is not. This simple scoring system provides an accessible way to monitor empowerment both initially and overtime. We self-evaluated our empowerment one year after finishing the workshop and found that we doubled the number of recommendations undertaken, without implying a perceived high effort on our part. This result shows that many recommendations at the individual level can be easily incorporated. Some actions, however, would require more time to be achieved, as these include advancement in our careers and occupying leadership and decision-making

positions. Noteworthy, users of the GPG can choose which recommendations they would like to work on, yet without considering them as obligations.

For us, the workshop was a transformative experience. At the individual level, many of us became engaged in activities that we had never done before. For example, VC recognized her leadership capabilities and got a leadership position (vice-president) in a society encompassing her area of expertise; AL obtained the presidency of a society within her specialty and EPC applied and obtained a professor position. Also, RD, JP and AJS applied for international funding opportunities and obtained stays abroad. JB applied for an award for the first time and obtained it. JP, PTP and BM participated in gender-related sessions at national and international meetings. Finally, PTP, BM and MN recognized that the workshop had a major impact on their private lives.

At the collective level, we developed a sense of belonging to a group with a shared vision. Notably, before participating in the workshop, most of the participants did not know each other, but afterwards we became a cohesive group that has stayed in touch for more than two years now and hope to stay together into the future. Bonilla et al. (2021) discussed the importance of groups of WIS addressing common goals. The feeling of 'belonging to a group' that we developed probably relates to the fact that, despite our differences in career stage and scientific background, we share common goals and doubts. We feel safe in an environment that lacks hierarchies, has fluent communication and where we can participate in honest discussions and support each other.

We envision advancing equity for WIS as an ongoing process and are committed to fostering the empowerment of women in science through different actions. For example, since we first dreamed about holding the workshop, we applied for and obtained grants for running the workshop (in May 2023), collectively wrote the GPG that we now present in this special issue, showed the results of our workshop at conferences and participated in interviews on the radio, sharing our experiences. Our workshop was also highlighted in the news of CONICET (National Scientific and Technical Council of Argentina). This year (May 2025), we gathered once again in person for two days, despite lacking funds, to discuss further challenges to our empowerment that we considered necessary to address. The subjects discussed included: a) how our mental health impacts upon our performance, especially in the scenario of limited resources we are facing; b) challenges related to leading and inspiring our students; c) the use of artificial intelligence in our workspace; d) how to break our glass ceiling and self-limiting beliefs, and e) how to find creative alternatives to get funds in the current stressful economic scenario for Argentinean science. With this second encounter, we found that long-term initiatives lead to the expansion of areas to discuss and act upon, reinforcing the empowering process and triggering new avenues to foster change.

Based on our experience, we propose that empowerment can be significantly advanced through formal training programs and dedicated discussion spaces. In our case, the training was driven at the grassroots level. Multiple efforts, both at grassroots and system levels, are necessary to empower WIS. We intend to continue generating spaces for discussion and to empower WIS. For example, in July 2025, we presented the GPG in a special session of women and Limnology in the XI Argentinean Limnology Conference. This session was organized by us, and it was the first one of its kind in the history of the conference. During the encounter, in which about 30 women participated, four researchers briefly shared their experience about: the construction of the GPG, motherhood (children with disabilities, adoption and fertility treatments), the transition to retirement and gender distribution in Argentinean Limnology. After the testimonies, we held discussions on these topics at four parallel tables and finally gathered collective feedback. This format was designed to encourage horizontal dialogue and to promote leadership roles among participants. Likewise, in September 2025 we will present the GPG in a special session of women in Botany at the XL Argentinean Botanical Conference. We are also considering the organization of new in-person encounters for discussing further aspects of empowerment, such as learning to ask for help, collaborating with other groups, realizing that it is never too late, fostering publications and balancing the roles of family and society, as suggested by Guevara-Ramírez et al. (2022).

Finally, the GPG is an instrument that invites WIS to incorporate the following notions: 1)

we can become empowered by emancipating from the burdens we face, 2) each of us can be part of the change that we want to see happening in academia, and 3) any action is better than a lack of action. We hope that the GPG is useful to guide and inspire WIS and women from other disciplines, as many elements in the guide can be extrapolated to various performance areas. We believe that the GPG is an 'open-ended' framework, a part of an ongoing construction that will continue to evolve through improvements, expansions, and reformulations resulting from the feedback, needs and diverse perspectives of its readers and users.

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