EDUCAÇÃO EM FOCO
PROGRAMA DE PÓS-GRADUAÇÃO EM EDUCAÇÃO | UNIVERSIDADE DO ESTADO DE MINAS GERAIS

Mulheres na pós-graduação: conquistas e desafios à equidade[1]

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RESUMO
Com base na Plataforma Sucupira, gerida pela Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), é possível notar as transformações pelas quais passou o Ensino Superior no Brasil, tão significativas nas últimas décadas. A partir do olhar das autoras do presente texto, se destaca especialmente o aumento no número de mulheres matriculadas em programas de pós-graduação. Partindo dessa informação, as autoras deste estudo têm como objetivo analisar dados entre os anos de 2013 e 2022, seja quanto às variações nas taxas de ingresso de mulheres em cursos de mestrado e doutorado nas 5 regiões do país, seja no que se refere ao acesso delas às áreas historicamente dominados pelos homens, tais como Ciências Exatas e da Terra, Ciências Agrárias e Engenharias. Desta maneira, as autoras pretendem traçar uma linha do tempo dos ingressos e questionar se há aumento ou diminuição estatisticamente significantes nessas áreas. A metodologia utilizada para a coleta de dados foi a seleção das variáveis e, na consideração das categorias, as autoras adotaram a perspectiva feminista e os estudos de gênero.

PALAVRAS-CHAVE: Educação. Gênero. Justiça. Pós-graduação.

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Women in postgraduate studies: achievements and challenges to equity

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ABSTRACT
Based on the Sucupira Platform, managed by the Coordination for the Improvement of Higher Education Personnel (CAPES), it is known that Higher Education in Brazil has undergone significant transformations in recent decades, especially with the increase in the number of women enrolled in postgraduate programs -graduation. Based on this information, this study aims to analyze the evolution between the years 2013 and 2022 of variations in the entry rates of women in master's and doctoral courses in the 5 regions of the country, as well as their access to areas historically dominated by men.: Exact and Earth Sciences, Agricultural Sciences and Engineering. The aim is to draw a timeline of income and question whether there is a statistically significant increase or decrease in these areas. The methodology used for data collection was the selection of variables and the consideration of categories, the feminist perspective of the gender scholars who signed this text.

KEYWORDS: Education. Gender. Justice. Postgraduate.

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Mujeres en el posgrado: logros y desafíos para la equidad

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RESUMEN
A partir de la Plataforma Sucupira, gestionada por la Coordinación de Perfeccionamiento del Personal de Educación Superior (CAPES), se sabe que la Educación Superior en Brasil ha experimentado importantes transformaciones en las últimas décadas, especialmente con el aumento del número de mujeres matriculadas en programas de posgrado. -graduación. A partir de esta información, este estudio tiene como objetivo analizar la evolución entre los años 2013 y 2022 de las variaciones en las tasas de ingreso de mujeres a carreras de maestría y doctorado en las 5 regiones del país, así como su acceso a áreas históricamente dominadas por hombres.: Ciencias Exactas y de la Tierra, Ciencias e Ingenierías Agrícolas. El objetivo es trazar una línea temporal de los ingresos y cuestionar si hay un aumento o una disminución estadísticamente significativa en estas áreas. La metodología utilizada para la recolección de datos fue la selección de variables y la consideración de categorías, la perspectiva feminista de las académicas de género que firmaron este texto.

PALABRAS CLAVE: Educación. Género. Justicia. Graduado.

Introduction

The objective of this article is to present a new focus of an ongoing research project. This study uses public data made available through the Sucupira platform, managed by the Coordination for the Improvement of Higher Education Personnel (CAPES). These data allow for a detailed analysis of women's access to stricto sensu graduate programs in Brazil over the past ten years (2013 to 2022).

The broader research addresses the distribution of female students and entrants across Brazil's regions (South, Southeast, Northeast, Center-West, North); women's access and the enrollment of female students in fields traditionally dominated by men; and the evaluation and rating of graduate programs at different universities and their respective fields of study, including detailed data on program quality. For this article, two specific topics were selected: the number of women accessing graduate programs, disaggregated by region, and the number of women entering programs in the broad areas of Agricultural Sciences, Exact and Earth Sciences, and Engineering.

The selection of variables was carried out exclusively by the researchers, based on their theoretical, academic, and activist frameworks, as well as on their identities and the categories that have historically shaped the experiences and trajectories of women as feminists, researchers, scholars, mothers, workers, professors, and many others that we are and may yet become. It is also worth noting that part of the data collection methodology was developed with the consultation of a statistical professional, given the large-scale nature of the data involved.

The data were collected throughout 2024 and analyzed through the lens of Feminist Studies, Education, and Gender Relations, as well as themes concerning Feminisms and Womanhood in the university setting. These terms are understood by the authors of this article as central to their research approaches, pedagogical practices in higher education, and outreach activities through the *Observatório Mulheres* (Women's Observatory) at the Federal University of São Carlos. This Observatory was launched in 2024 as an outreach project and established in 2025 as one of the Rectorate's administrative units. It functions as a multicampus body through which women students, faculty, staff, and members of local communities form a networked collective throughout the state of São Paulo, including the capital. The data presented and analyzed in this article will also support initiatives of this Observatory, which is the result of relationships between academic knowledge and

the knowledge produced within social movements. The authors of this article, and of the broader dossier to which it belongs, are active members of this Women's Observatory collective[4].

Development

Despite notable achievements in recent decades—such as the significant increase in the number of women enrolled in master's and doctoral programs—structural barriers that limit the full development of their academic and scientific careers remain deep and challenging. Over the past decades, it can be said that higher education in Brazil has undergone significant changes, particularly with regard to the inclusion of women in graduate programs. This statement is supported by the analysis of data from the Sucupira Platform, which reveals a considerable rise in the number of women enrolled in master's and doctoral programs.This study therefore aims primarily to analyze the evolution and disparities in the enrollment rates of women in master's and doctoral programs across different regions of Brazil between 2013 and 2022. Simultaneously, it seeks to assess whether this increased participation is occurring organically in the selected fields of knowledge listed above.

Considering the importance of systematically evaluating and reevaluating traditional historical notions in order to include women's experiences, we boldly emphasize our belief in the need to integrate feminine perspectives into historical narratives. This, in turn, aligns with the objective of the present article, which addresses changes in women's enrollment rates in graduate programs in Brazil. As articulated by Joan Scott in her seminal article Gender: A Useful Category of Historical Analysis:

> We are learning that writing women into history necessarily implies the redefinition and broadening of traditional notions of what is historically significant, to include both personal and subjective experience as well as public and political activities. It is no exaggeration to say that, although the initial attempts may have been tentative, such a methodology entails not only a new history of women but also a new history altogether (Scott, 1990, p.72).

Going a step further, the author's studies encompass both personal and subjective experience as well as public and political activities; her reflections highlight the need for a comprehensive approach that considers all aspects of women's lives. This article, therefore, adopts such a perspective by considering not only enrollment statistics, but also the regional contexts of Graduate Programs. In the same vein, certain factors were assessed to identify regional differences that may or may not influence women's opportunities and experiences in higher educatior.

[4] For more information, please visit: https://www.observatoriomulheres.ufscar.br/ .

Furthermore, the quotation from Scott's text underscores the need for a "new history" that meaningfully includes women. To achieve this, it is necessary to focus on the present as well. This study documents the growing presence of women in graduate education and questions whether this increase is occurring within programs that hold greater prestige and receive more resources, and/or in fields traditionally dominated by men. In doing so, we also aim to contribute to a deeper and more equitable understanding of the transformations taking place in Brazilian higher education, aligning our perspective as researchers and authors of this text with Joan Scott's (1995) theoretical approach. This perspective aligns with a historical notion rebuilt through principles of justice, visibility, and the inclusion of marginalized groups, from the standpoint of social justice.

Moreover, by examining both structural and cultural challenges particularly in fields historically occupied by men we are able to reflect on how women have positioned themselves within these domains. This analysis reinforces the importance of promoting gender equity policies in higher education and across the university system as a whole.

This study therefore seeks not only to document the participation of women in graduate programs, but also to contribute to the shaping of a new era and a new history of higher education in Brazil—one that recognizes and values the contributions of women. To that end, the study details the increasing presence of women in graduate programs, providing quantitative data that illustrates this trend and offering a more nuanced understanding of the processes unfolding with the growing enrollment of women in this level and mode of education.

We also aim to examine whether, while fields such as the humanities and biological sciences show high female representation, so-called "hard sciences" (such as computer science, physics, and engineering) continue to be predominantly occupied by men. The results drawn from the data analysis of the Sucupira Platform may reflect cultural and historical patterns that associate certain fields with women especially those related to caregiving while reserving technological and exact sciences for men.

Beyond these contributions, the concepts developed in this study may also serve to support the development of new conceptual frameworks and definitions, which have been a central focus of research conducted within the Research Group on Education, Communication, and Feminisms, where the authors of this paper are actively engaged.

Results by Region

We highlight a historically relevant piece of information from the perspective of Bolzani (2017): the numerical gender balance among researchers registered with the CNPq (National Council for Scientific and Technological Development) was achieved in 2010, when the 128.6 thousand researchers listed in the database were evenly divided between men and women. Let us now examine the data.

An initial presentation of data is necessary to highlight the first steps of this study. According to data from the 2022 Census, Brazil currently has a population of 203,080,756. According to the IBGE News Agency, in 2010, when the penultimate census data were published, the population was approximately 12,306,713 fewer, indicating that over the past 12 years the country has experienced annual growth, albeit at a slower rate than in previous decades.

Other relevant data, taken from the Sucupira Platform, concern the number of students enrolled in graduate programs in Brazil. In 2013, there were a total of 271,502 students enrolled in these programs. By 2022, this number had reached 355,252, reflecting a 30.85% increase.

Focusing on the number of women, in 2013 there were 145,939 women enrolled at this level of education. By 2022, this number had grown to 194,576 a significant increase of 33.33% in the number of female graduate students.

When we shift our focus to regional data, further findings emerge that reflect the potential of the doctoral research currently underway.

An analysis of the data from the South region reveals steady growth in the number of graduate students over the years. In 2013, the total number of students was 54,515, of whom 30,546 were women. In 2022, the total number of students increased to 73,656, with women representing a significant portion 42,296 in total. When expressed in percentages, we find that the South region experienced a 0.65% increase in the total number of graduate students during the period under review, while the proportion of women accessing this level of education increased by a more significant 1.39%. Similar growth was observed in the Northeast and Center-West regions.

In the Northeast region, the total number of graduate students increased from 46,235 in 2013 to 68,230 in 2022. Female participation also rose, reflecting a national trend of greater inclusion of women in graduate studies, with the number of female students growing from 25,168 to 37,995.

In the Center-West region, we observed moderate growth, with the total number of graduate students rising from 18,457 in 2013 to 27,491 in 2022. The number of women also increased proportionally, from 10,334 to 15,736, indicating a continued trend of growing inclusion. The

percentage growth of women in both the Northeast and Center-West regions was exactly 1.25%, a figure that can be considered significant.

The analysis of the North region, which has the smallest number of graduate students among all regions analyzed, also showed growth. In 2013, there were 9,774 students, rising to 18,509 in 2022. When examining the number of women, we see a jump from 5,306 in 2013 to 10,537 in 2022, representing a 2.64% increase in the number of women enrolled in graduate education—the highest percentage increase among the five regions. This rise is significantly relevant and demonstrates that, even with an overall increase in the number of students in the region, the enrollment of women grew much more than that of men.

Lastly, the Southeast region, which has historically concentrated the largest number of graduate programs in Brazil, also showed an increase in the total number of female students. However, when analyzed in percentage terms, this increase was nearly imperceptible especially when compared to the other regions. In 2013, there were 142,521 graduate students, including 74,585 women. By 2022, this number had increased to 167,366 total students, with women accounting for 88,012 of them.

An analysis of the Southeast region reveals that it is the only region in Brazil where the percentage of female students is lower than the national average. In all other regions, the percentage of women is above the national average.

The data show that, over the years, there has been a significant increase in the enrollment rates of women in master's and doctoral programs in four of the five regions analyzed. This increase was most notable in the North region, with a 2.64% rise, followed by the South (1.39%), and then the Center-West and Northeast (both with 1.25%). Finally, the Southeast was the only region that did not show a statistically significant increase in the number of women enrolled in graduate programs.

Results by Broad Field

A subsequent level of analysis involves the number of students enrolled, categorized by broad academic field, requiring an initial clarification to properly interpret the presented results. First, it is important to understand which academic programs fall under each field. According to CAPES, the field of *Exact and Earth Sciences* comprises programs in Astronomy and Physics, Computer Science, Geosciences, Mathematics, and Chemistry. When we refer to *Agricultural Sciences*, this includes programs such as Food Science, Agricultural Sciences, Veterinary Medicine, and Animal

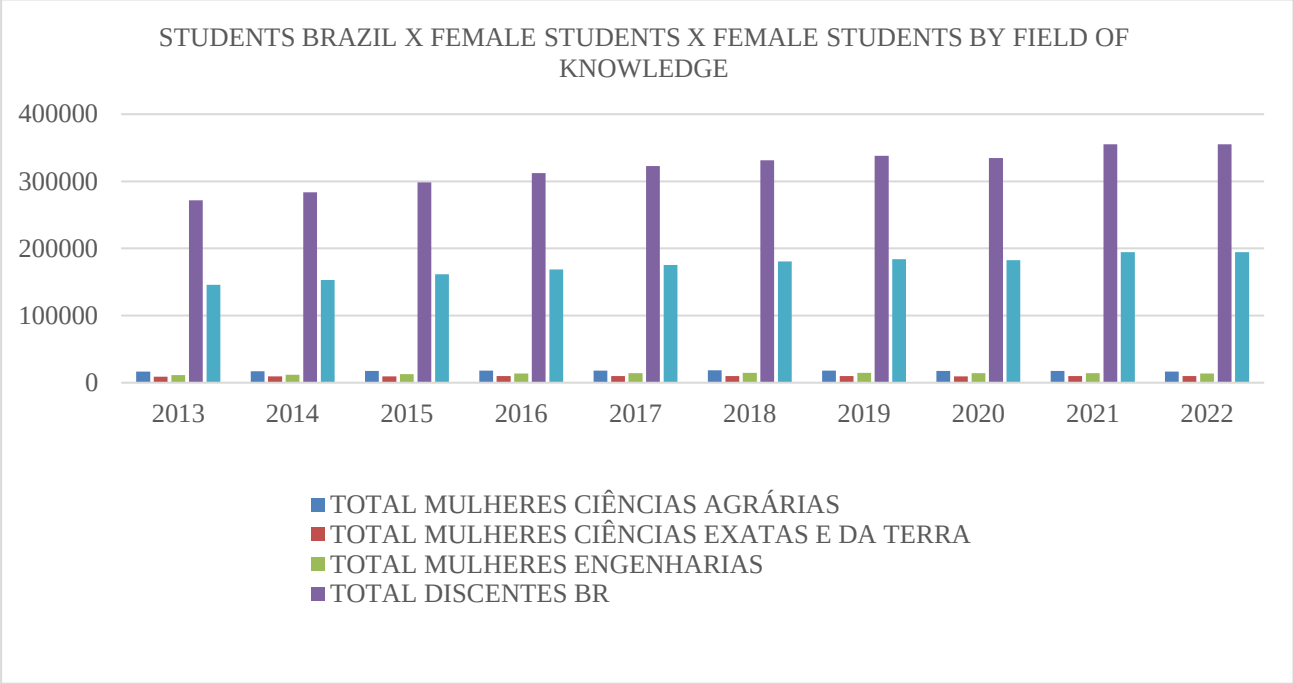
Science/Fisheries Resources. In addition to these, we have the *Engineering* field, which includes civil, electrical, mechanical, production, software, and computer engineering programs, among others.

It is important to highlight that these fields were selected for analysis in the present study due to their high concentration of male enrollments, as they are traditionally considered domains in which men naturally predominate.

In 2013, there were 29,522 students enrolled in Agricultural Sciences, 27,084 in Exact and Earth Sciences, and 34,354 in Engineering, totaling 90,960 students. Among this total, the number of women enrolled in these broad fields of knowledge was: 16,475 in Agricultural Sciences, 9,070 in Exact and Earth Sciences, and 11,341 in Engineering amounting to a total of 36,886 female students, or 40.55% of total enrollments in these areas. An analysis of the data from 2022, ten years later, reveals relevant changes. While the number of students enrolled in Agricultural Sciences decreased to 28,458, the number in Exact and Earth Sciences rose to 30,566, and Engineering experienced a more significant increase, reaching 39,807 students. This results in a combined total of 98,831 students enrolled in these three fields. When analyzing the number of women in these areas, the total reaches 39,047, with 16,838 enrolled in Agricultural Sciences, 9,936 in Exact and Earth Sciences, and 13,862 in Engineering. Thus, women represented 39.87% of total enrollments in these three fields of knowledge.

Let us look at the graph below:

Graph 1 – Comparison of the number of graduate students enrolled over the past 10 years, female students, and female students enrolled in the fields of Agricultural Sciences, Exact and Earth Sciences, and Engineering.



Source: Conducted by the authors.

It would be reasonable to immediately reflect that all the major fields showed significant growth in total enrollment and also in the number of women. However, when we evaluate the data statistically, to effectively confirm whether there was an actual increase or decrease in enrollment in these fields, we find a rather peculiar situation. All three fields experienced a statistically significant reduction in enrollment. The evaluation produced the following results: in the field of Agricultural Sciences, there was a significant decrease of 2.86% in total enrollment and 2.64% in the number of women; in the field of Exact and Earth Sciences, there was also a significant decrease of 1.37% in total enrollment and a 1.11% reduction in the number of women; and finally, in the field of Engineering, we observed a reduction of 1.45% in total enrollment and 0.65% in the number of women.

It is important to highlight that, unlike the three major fields selected for analysis in this study namely, Agricultural Sciences, Exact and Earth Sciences, and Engineering other fields showed the opposite trend. A notable example that helps illustrate the situation is the statistically significant increase in the enrollment of women in the following fields: Humanities, Applied Social Sciences, Linguistics, Languages and Arts, and the Multidisciplinary field. We therefore conclude that there is not only a decrease in women's enrollment in the highlighted fields, which have traditionally been male-dominated, but also a natural migration of both men and women to other fields.

Upon evaluating the results obtained from the analysis of the data compiled from the CAPES platform, we clearly observe that, even at first glance when the numbers show increased enrollment, this does not necessarily represent a statistically significant increase in access. A more detailed statistical analysis is needed in order to truly understand and measure women's access to higher education at the level under study.

Taking a second step toward the proposed analysis, we present the number of female entrants, separated by major field of knowledge. In other words, we will now analyze whether the significant decrease in women's enrollment in these three major fields is also reflected in the number of new entrants.

From this analysis, we similarly observe that all three fields also experienced a statistically significant reduction in the number of entrants: a 2.45% decrease in the field of Agricultural Sciences, a 1.71% decrease in Exact and Earth Sciences, and a 2.83% decrease in Engineering. In 2013, there were 9,015 entrants in Agricultural Sciences, compared to just 6,851 in 2022. Of these, 5,042 were women in 2013, and only 4,046 in 2022. In Exact and Earth Sciences, there were 2,694 female entrants in 2013 and 2,081 in 2022. Finally, in Engineering, the number of female entrants dropped from 3,417 in 2013 to 3,663 in 2022.

Considering the data presented above, we can observe that certain fields of study have higher or lower concentrations of women. The four areas that showed a significant increase in women's access over the past ten years were: Applied Social Sciences, Humanities, Linguistics, Languages and Arts, and Multidisciplinary Studies. Currently, the highest number of women is concentrated in the field of Humanities, with 37,177 (thirty-seven thousand one hundred and seventy-seven) female students enrolled a statistically significant increase of 0.67% over the last ten years. The second field with the highest number of women enrolled is Multidisciplinary Studies, with 26,307 (twenty-six thousand three hundred and seven) students and an exponential growth of 4.08% in the same period. These results are considered important when analyzing women's access to this level of education. The remaining two areas Applied Social Sciences and Linguistics, Languages and Arts currently have 24,594 (twenty-four thousand five hundred and ninety-four) and 15,864 (fifteen thousand eight hundred and sixty-four) women enrolled, respectively, with significant increases of 2.06% and 0.28%.

Discussion

The results above may suggest that policies aimed at inclusion and the expansion of higher education have been effective in increasing female participation in graduate programs. However, regional disparities still represent a significant challenge, particularly in the North and Northeast regions.

The findings of this study not only show an increase in the number of women entering graduate programs across all regions of Brazil, but also indicate meaningful progress in promoting gender equity in higher education at least in certain fields. We also observed that, when analyzing enrollment data by field of study specifically in the areas of Exact and Earth Sciences, Agricultural Sciences, and Engineering there has been a decline in enrollment in fields traditionally dominated by men, despite being part of the *stricto sensu* graduate system. At the same time, a significant number of women have gained access to this level of education.

When examining the work of Lombardi (2024), we find several points that help explain the historically predominant male access to Engineering programs, for instance:

> First, in Brazil, engineering was initially associated with military schools, and civilian access to these careers only began in the second half of the 19th century. Pursuing the military track formally excluded women from entering the profession. Moreover, military engineering also entailed preparing men for leadership positions as officers. Second, the characteristic of commanding teams of workers persisted in civil engineering even after its military origins were forgotten, becoming yet another reason to exclude women from the profession.
> With the growth of cities and the advancement of industrialization, the job market for engineers expanded: they were increasingly required for urban planning and infrastructure, for the design, installation, and operation of industries across various sectors, and, from the 1950s onward with the arrival of foreign capital and the growing presence of more modern sectors in industrial activity for tasks involving production rationalization and management. Lombardi emphasizes that the environment in which engineering work takes place directly influences female participation: in infrastructure-related activities carried out “in the open air,” the presence of women is rare, whereas it is more consistent in industrial activities that take place “indoors.”(Lombardi, 2024, p.69).

This increase in the number of women in graduate programs may represent an important step toward the triad of concepts that the authors of this article alongside other researchers in the same research group, of which they are all members have been developing. Within the *Education, Communication, and Feminisms* Research Group, currently based at UFSCar-So, a central theme has been the triad of academic, epistemic, and scientific justice. In addition to what we have presented in this article and what is being developed in the dissertation currently in progress, we first addressed

this framework in the book *Saberes Docentes Fora do Armário: educação como território de resistência* (Auad; Roseno; Lahni, 2022).

The justice triad aims to define and articulate the concepts of academic, epistemic, and scientific justice. These represent the multiple layers of barriers that we, as women, have traditionally had to overcome and that still persist as significant obstacles to accessing higher education. These challenges include traditional gender roles, class-based inequalities, and issues related to race and ethnicity, sexual orientation, generation, and other specificities, which, when recognized in their interconnections, not only shape individuals and their subjectivities, but also become key elements for the development and implementation of educational policies both in higher education and across all levels and modalities of schooling.

The increase in women's participation in graduate education, as indicated by data from a legitimate source the Sucupira Platform can be seen as a step toward correcting historical inequalities. At the same time, this research opens space for new questions, new studies, and new scenarios that reflect evolving contexts.

Women's participation in stricto sensu graduate programs in Brazil over the past ten years is a relevant and urgent topic for understanding the country's educational landscape. Understanding how the presence of women has evolved over time in this educational level is essential for identifying both the challenges and opportunities for growth. Through this study, we aim to provide a comprehensive and detailed analysis of women's participation in graduate education, offering sound data-supported insights and contributing to discussions on gender equity in academic settings.

The entry and permanence of women in graduate education reflect not only a pursuit of professional qualifications but also a broader struggle for equal opportunities and the dismantling of historical barriers. This research is necessary in light of the persistent gender inequalities in society, as well as the growing importance of women's participation in the labor market. Therefore, we justify this study as a means of fostering reflection, critical analysis, and concrete action regarding the current situation of women entering and participating in this level of education.

The objectives of this research were to analyze and understand whether there has been an evolution in the participation of women in stricto sensu graduate programs over the past decade, and to identify the main challenges they face in this context. Furthermore, the findings underscore the importance of women's presence in graduate education for the scientific, technological, and socioeconomic development of the country, contributing to the construction of a more just and inclusive society.

There is a well-known maxim among those concerned with the situation of women both globally and in Brazil that states: *There are no human rights without women's rights.* One possible interpretation of this assertion is that any attempt to promote education for human rights will be in vain, or at best generic, if it does not explicitly identify the categories that constitute the subjects of those rights.

It is well established and widely accepted that the inclusion of women in various prestigious spaces is essential for building a more equitable society. One of the fields that most strongly advocates this ideal is education, where gender scholars, feminists, and a variety of social movements whether aligned with leftist ideologies or inspired by liberal thought join forces and align their efforts.

In the words of Bolzani:

> We must make a strong commitment to the process of deconstructing a culture that treats girls and boys differently. This is, undoubtedly, a difficult task, as we women often also internalize a worldview in which the idea of femininity is associated primarily with the role of family caregiver; in which girls are "naturally" more inclined toward careers in the humanities, for example. A perspective that, meanwhile, encourages boys to be competitive and to continuously engage in games that develop reasoning skills (Bolzani, 2017, p. 57).

Other ways of perceiving and analyzing these numbers can be envisioned when we reflect on the criteria for accessing resources. By focusing on the relationship between graduate program evaluations and the distribution of funding based on those evaluations, questions arise regarding whether such dynamics decrease or increase existing inequalities. As is well known, graduate programs with higher evaluation scores tend to receive more resources, legitimacy, and visibility. They are awarded a greater number of research scholarships for students, grants for publications, and funding for international exchanges. In many cases, these aspects can be directly linked to analyses that take gender relations into account.

Access to resources is a key component in promoting not only admission and access but also retention, academic achievement, and the circulation and production of knowledge. These factors become even more significant when viewed as integral to affirmative action policies targeting specific groups, such as Black women students, transgender women, lesbians, travestis, and bisexual women, as well as students who become mothers and care for babies and young children during their undergraduate and graduate studies.

Regarding the data tabulated by field of study, we observed that areas traditionally dominated by men have shown a decline in the enrollment of women—and not only women, but in overall

enrollment numbers as well. In the book *Mulheres na Ciência*, edited by Letícia de Oliveira and Tatiana Roque, several insights reinforce our reflections. When discussing what they refer to as the "glass ceiling," the authors provide an overview that highlights the invisible barriers that prevent women from advancing to positions of scientific leadership. Considering the data we analyzed and presented in the previous pages, we note that their assertions align closely with our findings:

> Beyond representation, it is also essential to analyze scientific culture—that is, the habits and customs of scientific practice that systematically exclude women. There persists a common belief that certain careers are inherently "feminine" while others are "masculine," implying that women lack the natural aptitude for the latter. This notion is so deeply ingrained within the scientific community that women are, in fact, more present in all fields related to caregiving. In contrast, in so-called "hard sciences" such as mathematics, engineering, and other technical disciplines, the predominance of men is striking (Roque; Oliveira, 2024, p. 16).

Furthermore,

> Alongside the underrepresentation of women in prestigious spheres of academic research, discrepancies also persist across other areas of the labor market. A 2016 estimate presented at the World Economic Forum indicated that only one woman secures a job in STEM fields for every four men. In the field of Artificial Intelligence (AI), according to UNESCO, among the 20 countries with the highest concentration of women in science working in the sector, only 22% of professionals are women. This global gap becomes even more pronounced in the context of Latin America and the Caribbean (Roque; Oliveira, 2024, p. 20).

According to Lombardi (2024), in this same vein, the "glass ceiling" a metaphor the author also expands by referencing the notion of the "sticky floor" represents the limitation women face in accessing top-level positions in companies and institutions. While it is true that some women do currently occupy high-ranking roles in the job market, this should not be used to downplay or obscure a broader and harsher reality: the vast majority of women are engaged in informal, precarious work, primarily in caregiving roles, and continue to bear the main responsibility for household chores and childcare.

Final considerations

At present, the results obtained in our research suggest that inclusion and expansion policies in higher education have been effective in increasing women's participation in graduate programs. However, regional disparities remain a challenge, especially in the North and Northeast regions, as evidenced by the data collected through the Sucupira Platform. By adopting our emerging conceptions of academic justice, epistemic justice, and scientific justice as guiding ideals, we envision

educational policies for higher education as mechanisms that require ongoing adjustments, improvements, and attention to specificities that reflect the local character of Brazil's diverse realities—both within each region and across regions. Considering ways to better accommodate regional differences, while also respecting local and activist knowledge, can help reduce inequalities, decrease dropout rates, and foster student retention in classrooms and laboratories. This effort must support the enjoyment of education from undergraduate studies through to the circulation of knowledge in graduate programs, via publications and other forms of dissemination that return the investment made by society in these educational levels and modalities.

With this text which is itself an expression and outcome of the triadic conception of justice we have elaborated we join the chorus of women scholars in reaffirming the significant increase in women's presence in graduate programs across all regions of Brazil over the past ten years. Despite regional disparities, the overall trends are positive and point to steady progress in gender equity, as reflected in the key indicators discussed herein.

At the same time, it is important to reflect on the fact that, although women's participation in the formal labor market has increased in recent decades, they continue to be predominantly concentrated in lower-prestige, lower-paid, and more vulnerable jobs. Occupational segregation still persists today: women are more likely to occupy positions in lower-wage sectors such as services and domestic work, rather than in highly paid fields such as technology and engineering.

Furthermore, a dual pattern emerges in women's employment: on one hand, a majority are found in precarious and poorly paid roles, while on the other, a minority hold prestigious positions but still face significant barriers to advancement within organizational hierarchies. This context broadens our understanding of what the aforementioned authors describe as the "glass ceiling," highlighting that even in traditionally male-dominated fields, women often remain in subordinate roles and encounter additional obstacles to career progression.

It is also crucial to note that the marginalization of women from better job opportunities is not solely a matter of access, but also of retention in stable and well-compensated positions—reflecting a system that still privileges men in terms of mobility and job security.

Finally, it is essential to continue monitoring and analyzing these trends, and to investigate the factors contributing not only to regional disparities, as identified in this study, but also to inequalities in access to the labor market and the concentration of women in lower-status positions. This analysis aims to support the development of even more effective public policies to promote inclusion and equity in higher education. Increasing the presence of women in science is just as

important as fostering a scientific practice free from misogynistic biases—one that removes barriers to women and upholds their right to build, individually and collectively, their scientific legacy, to the benefit of all people and society as a whole.

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