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The level of cognitive and behavioral representation gender consideration among trainee teachers in Morocco

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This study aims to establish a baseline understanding of the concept of gender and its specificities among trainee teachers in the Marrakech and Oujda regional Centers for Education and Training in Morocco. Using a descriptive and analytical approach, data were collected via an electronic questionnaire distributed among trainee teachers from these two Centers. The analysis focused on both cognitive and behavioral representations of gender, exploring trainee teachers' perceptions, attitudes, and responsiveness to gender considerations in school settings. Methodological accuracy was respected as much as possible through a rigorous design of the questionnaire, data validation processes, and systematic cross-referencing of responses. The findings highlight three major themes. First, an average level in understanding the concept of gender and its cognitive representation. Second, divergent opinions that revealed differences in cognitive perceptions of gender-related concepts, and third, a strong consensus on the importance of adopting gender-responsive teaching practices and developing behaviors that support gender equity in the classroom. This research is significant in the Moroccan cultural and educational context, where Regional Teacher Training Centers play a crucial role in preparing future educators to address gender disparities effectively and foster inclusive educational environments.

KEYWORDS

cognitive representation, behavioral representation, gender, trainees' competence, gender mainstreaming

Introduction

There are essential areas for raising awareness about gender mainstreaming as a strategic approach for realizing gender equality, whether through promoting the protection of gender-related rights or through spreading and promoting behaviors that ensure fairness and equality between genders in all fields economic, social, and developmental or by reinforcing positive attitudes toward women's rights. Most countries focus on integrating gender mainstreaming into their legislation to promote gender equality (UN Women, 2020; UNICEF, 2017) and create an inclusive environment for coexistence (World Health Organization, 2024), where individuals of all genders can fulfill their psychological and social needs (Kitta and Cardona-Moltó, 2022).

Education is arguably the most capable field of fulfilling this significant task, given its accessibility to everyone, especially during the critical stages of personality formation and attitude development (childhood and adolescence), and its ability to address the three dimensions required for awareness: knowledge, behavior, and attitudes (UN Women, 2020). Teacher training within this field is of paramount importance in this regard, as teachers are the cornerstone of any change or development in the system, with the direct influence they exert on those targeted by education. Therefore, any misunderstanding or misrepresentation of this issue by teachers, or any deviation in their behavior and attitudes toward it, will inevitably disrupt the education sector's programs and the plans of the authorities responsible for raising awareness about gender mainstreaming. Thus, teacher training institutions bear the responsibility of incorporating this awareness and considering it in their major choices, programs, and strategies.

In Morocco, significant strides have been made to incorporate gender equality principles into national education policies, particularly through legislative reforms and the development of gender-sensitive curricula (Ministry of National Education, 2021). However, bridging the gap between policy and classroom practice remains a challenge, especially in equipping future teachers with the necessary tools to foster gender-equitable learning environments.

Since the early 2000s, Morocco has embarked on ambitious reform projects aimed at developing human resources by enhancing awareness of rights and responsibilities within the broader framework of democracy and human rights (Ministry of National Education, National Charter for Education and Training, 1999). The gradual implementation of these concepts has primarily taken place in educational institutions, which serve as incubators for younger generations. These institutions have been positioned as centers for human development, grounded in two fundamental principles: equality of opportunity and quality education for all (Ministry of National Education, Strategic Vision 2015–2030, 2015).

Schools are widely recognized as crucial spaces for implementing gender mainstreaming through curricula and teaching methods (UNESCO, 2019). In Morocco, the expectation is that schools will actively promote gender equity in classrooms. However, achieving this goal depends on teachers' ability to internalize gender mainstreaming principles and translate them into their teaching practices. This necessitates continuous professional development programs that not only equip teachers with theoretical knowledge but also focus on developing behaviors and attitudes aligned with gender-responsive teaching. In this context, gender mainstreaming refers to the deliberate integration of gender perspectives into teaching strategies, lesson planning, and classroom interactions, ensuring fair opportunities for all students regardless of gender.

Given this context, it has become essential to explore and deepen knowledge on this topic, particularly among trainee teachers. The aim of this study is to assess trainee teachers' perceptions of the concept of gender and examine how it is reflected in their teaching practices, both in terms of behavior and practical application.

Regional Centers for Education and Training (CRMEFs – *Centres Régionaux des Métiers de l'Éducation et de la Formation*; Decree Establishing Regional Centers for Education and Training Professions 2.11.672) play a pivotal role in preparing future teachers to become active agents of gender equity in education. These centers are not only responsible for imparting theoretical knowledge about gender issues but also for shaping practical teaching behaviors that align with the

goals of gender mainstreaming. This dual role is significant because teachers are at the frontline of social change and have the potential to address deep-rooted gender stereotypes through their practices.

Another context that frames this research is the fact that it is part of the Morocco Higher Education Partnership – Morocco (HEP-M) a USAID-funded project with the Moroccan Ministry of National Education and the Arizona State University. The project focused on reviewing the training curriculum for primary school trainees, as well as developing research foundations that would enable the development of training practice.¹ Great efforts were made within the framework of HEP-M to prepare an integrated training kit, which enabled the development of training curriculum, and contents and activities to suit the needs and developments. However, the new curriculum did not explicitly touch on the gender approach except in a sub-point within one of the axes of the educational sciences module subtitled the gender approach in the educational field (Minister of National Education, 2024).

This issue is raised in teacher training programs in many countries, including developed countries as illustrated by the following studies. First, Cardona-Moltó and Miralles-Cardona (2022) explored students' and teachers' perceptions of the implementation of gender mainstreaming through three educational programs at the University of Alicante, Spain. The results revealed a common view that gender mainstreaming had not emerged as a priority in teacher preparation, and that institutional indifference in applying a gender approach to teaching was common. The study contributed to identifying areas of need and proposing actions to advance gender equality training at the institutional and systemic levels.

The data from this study Cardona-Moltó and Miralles-Cardona (2022) suggested that the sampled institution was not sufficiently responsive to the implementation of the gender equality policy, and therefore the gender equality approach did not receive the necessary attention. As a result, pre-service teachers lost the opportunity to gain gender competence to practice gender pedagogy and raise awareness of gender inequalities and discrimination. So curricular reform was needed to adapt current teacher preparation programs and meet the gender training needs of faculty.

In another study, Miralles-Cardona et al. (2022) assessed future teachers' beliefs in their ability to practice sustainable gender equality after graduation, and to analyze the differences between degrees and gender using a self-efficacy scale designed specifically for this study and validated. The study was based on a survey of three groups of undergraduate and graduate students at the University of Alicante, Spain. Using a convenience sample representing the three disciplines of early childhood education, primary education, and secondary education, 610 students were asked to rate their confidence in their knowledge, skills, and awareness of gender equality using a 6-point Likert scale.

The study Miralles-Cardona et al. (2022) found that teachers reported unrealistic perceptions of their ability to sustainably practice equal opportunities. The level of self-efficacy was found to be average across the three groups of teachers, with no statistically significant differences between the scores in any of the three competency

¹ <https://internationaldevelopment.asu.edu/projects/higher-education-partnership-morocco/>

components, but female students rated gender-related attitudes as significantly higher.

This study contributed to advancing knowledge by providing a valid and reliable tool to measure teacher self-efficacy in gender equality practice (Miralles-Cardona et al., 2022). The Teacher Efficacy for Gender Equality Practice (TEGEP) scale consists of three independent but interrelated subscales, measuring: General Knowledge and Awareness (GKA) competence, gender pedagogy competence, and Developing Gender Attitudes (DGA) competence. As the perception of self-efficacy is an affective-motivational variable that forms the basis of good teacher practice, the design and validation of the TEGEP represents an advancement by providing a tool that allows exploring prospective teachers' gender competence, identifying educational needs, and proposing curricular improvements that facilitate the reduction of the gap between theory and practice regarding Education for All Development (ESD) in gender equality education. In addition, the results of this study indicated that participants reported relatively high levels of self-efficacy to practice gender-sensitive pedagogy, which, considering their lack of professional experience, portended an unrealistic perception of their gender self-efficacy.

However, Lahelma (2011) showed that integrating practices that support gender awareness in teacher education is difficult in Finland, they may assume that gender equality had been achieved, and that gender neutrality is believed to promote equality.

Likewise, in an earlier study, Lumadi (2010) reported on the extent to which colleges of education in Swaziland prepare student teachers to be gender-aware in their teaching practice. The study addressed the issue of gender sensitivity in contemporary teacher education, at both primary and secondary levels, from a curricular perspective, and found that gender-related differences in teacher education curricula are significantly present. To promote gender sensitivity in education, Lumadi (2010) recommended integrating gender issues into curricula, developing training programs for teachers, and ensuring that policies support gender equality in their training. This includes addressing the social and psychological barriers that perpetuate gender biases.

Theoretical framework

This section explores the theoretical underpinnings of gender representation, its cognitive and behavioral dimensions, and the role of education in promoting gender equity. By examining existing literature and relevant frameworks, this part aims to establish a clear conceptual basis for analyzing the integration of gender perspectives into teacher training programs.

Concept definitions

UNICEF (2017) defined “gender” as a social and cultural construct that differentiates the attributes of men and women, as well as girls and boys. It referred to the roles and responsibilities of men and women and includes the characteristics, capabilities, and behaviors expected from each (masculinity and femininity). The World Health Organization (2024) narrows this definition to the socially constructed characteristics of women and men, boys and girls, encompassing the

norms, behaviors, and roles associated with being female, male, girl, or boy.

The concept of gender mainstreaming originated with the term gender equality, which is one of the fundamental rights enshrined in the Human Rights Charter, aimed at establishing social peace and sustaining development and progress. Later, the term gender mainstreaming emerged, defined as a strategy to accelerate progress in the field of women's and girls' rights and achieving equality between them and men. This approach has been adopted by the United Nations and the international community as a means to establish women's and girls' rights as a subset of human rights to which the United Nations is dedicated. The goal is gender equality, and gender mainstreaming is the process that considers girls, boys, men, and women in any planning, including legislation, policies, and programs.

Since the establishment of this term in 1995, it has been adopted as a strategy to achieve gender equality. Since then, governments worldwide have committed to integrating gender perspective into policies and programs to achieve equality and social justice. Education has been recognized as the primary tool to achieve this goal (Kitta and Cardona-Moltó, 2022).

Research significance

The significance of this research stems from its contribution to addressing a crucial issue in the Moroccan educational context which is the integration of gender mainstreaming principles into teaching practices. By focusing on trainee teachers' cognitive and behavioral representations of gender, this study highlights the importance of equipping future educators with the knowledge, skills, and attitudes necessary to foster gender equity in classrooms. Furthermore, the findings aim to support ongoing efforts to enhance teaching methodologies, strengthen institutional practices, and promote a more inclusive and equitable educational environment.

The key aspects of the research significance are as follows:

- Enhancing the roles of Moroccan schools in embracing gender mainstreaming.
- Enriching teaching methods related to gender mainstreaming.
- Developing the professional performance of teachers to better meet the needs of gender mainstreaming.

Research questions, hypotheses, and objectives

Research questions

In the context of training in Regional Centers and international experiences, the following research question arose: what is the reality of cognitive and behavioral representation of gender among trainee teachers? From this core question, several sub-questions emerge: (a) to what extent do trainee teachers understand the concept of gender mainstreaming? (b) How much do they integrate gender-responsive teaching methods into their practice? (c) To what degree are they committed to developing gender-related behaviors in their educational approach?

Findings will contribute to bridging the gap between policy intentions and classroom realities by identifying existing strengths and

weaknesses in trainee teachers' cognitive and behavioral representations of gender mainstreaming. The ultimate goal is to propose actionable recommendations to improve gender-responsive teaching practices in Moroccan schools.

Research hypotheses

In order to structure this research and guide its investigation, a set of hypotheses were formulated. These hypotheses aim to explore the cognitive and behavioral representations of gender among trainee teachers, as well as their attitudes toward gender-responsive teaching practices. By examining these hypotheses, the study seeks to identify the extent of trainee teachers' interest in understanding gender mainstreaming, their willingness to adopt gender-sensitive teaching methods, and their commitment to fostering behaviors that promote gender equity in educational settings.

The following hypotheses serve as the foundation for the study's analytical framework:

- Trainee teachers have not an awareness of the concept of gender, as long as the training curriculum does not contain gender development programs.
- The trainees' educational practices do not rise to the level of supporting fairness and equality.
- Trainee teachers are prepared to engage positively to combat all forms of gender discrimination.

Research objectives

This study seeks to achieve the following objectives:

- Highlighting the cognitive representation of trainee teachers regarding the concepts of gender mainstreaming.
- Highlighting the behavioral representation of trainee teachers in their teaching related to gender mainstreaming.
- Demonstrating the ability of trainee teachers to develop behaviors related to gender mainstreaming.
- Highlighting trainees' willingness to engage in efforts to combat gender discrimination.
- Proposing recommendations to enhance the role of Training Centers in gender awareness.

Methods

Research design

This study employed descriptive analytical methods. By focusing on diagnosis, interpretation, and deriving conclusions, this approach enabled researchers to identify patterns, trends, and key insights within the collected data. We relied on both quantitative and qualitative analysis tools, combining statistical evaluation with interpretative analysis to ensure a comprehensive understanding of the research problem. This method facilitated the exploration of correlations and divergences within the responses, offering a clear vision on the participants' attitudes and readiness to incorporate gender-responsive practices into their future teaching roles. The analytical process was carried out rigorously, ensuring methodological accuracy through systematic validation and cross-referencing of data. This approach ultimately supports the reliability and credibility of the findings, providing a solid foundation for drawing

meaningful conclusions and proposing actionable recommendations for enhancing gender equity in Moroccan teacher training programs.

In this study, data were collected through an electronic questionnaire administered to trainee teachers at the Marrakech and Eastern Regional Centers for Education and Training, which we will provide some details about when we talk about research tools in the field framework.

Research plan

To ensure a clear and structured exploration of the research problem, this study is organized into two distinct yet complementary parts. This division allows for a balanced approach, combining theoretical foundations with practical analysis. The theoretical framework establishes the conceptual basis of the study, offering precise definitions of key terms and exploring the integration of gender mainstreaming into teacher training programs. Meanwhile, the field framework focuses on the practical dimension, assessing how trainee teachers perceive, understand, and implement gender-related concepts in their teaching practices. Together, these two parts provide a comprehensive perspective on the cognitive and behavioral representations of gender mainstreaming among trainee teachers, laying the groundwork for meaningful conclusions and actionable recommendations.

- 1 *Theoretical framework*: this section, described previously, was dedicated to defining the research terms and discussing the integration of gender mainstreaming in the training of trainee teachers.
- 2 *Field framework*: this section, to follow, we assess the cognitive and behavioral interest of trainee teachers in the topic of gender mainstreaming.

Field framework

Study population

The population of our study was the trainee teachers in the Regional Centers for Education and Training Professions in the teaching category, specifically the primary education division. They were teachers who held at least a bachelor's degree in various disciplines. This group was characterized by their different backgrounds and university majors, which made their training and qualification in these centers very important, and even necessary to be able to fulfill the tasks and responsibilities that they would assume. Although the research sample was taken from only two Regional Centers, the results may be generalizable to trainees in the other centers given that each center trains student teachers who come from different regions of Morocco and their training institution is determined based on their results in the entrance exam to these centers. This makes the influence of the characteristics of each region neutral, in addition to the standardization of training programs, whether at universities or training centers.

Study sample

The study sample consisted of trainee teachers at the Marrakech-Safi and Eastern Regional Centers during the

2023/2024 training season, with a total of 112 participants. The trainees ranged in age from 21 to 30 years, as the Ministry of Education has set a maximum age requirement for entry into the teaching profession of 30. This sample of trainees is also ethnically diverse: Arab and Amazigh, and as such, their dialects varied.

The distribution of the sample by gender is represented in Table 1 and Figure 1. The majority of the participants were females (63.39%). While the number of males did not exceed 36.61%. The higher number of females compared to males can be attributed to the larger number of female trainees at the Regional Training Centers. Recently, the success rate of females in the teaching entrance exams has doubled compared to that of males.

Table 2 and Figure 2 indicates a high percentage of males and females holding a bachelor's degree, which is an important indicator of the increased awareness among the target group. The low percentages of those holding a master's or doctoral degree highlight the need for greater efforts to deepen the academic knowledge of trainee teachers in general, and particularly their understanding of gender considerations. This can be achieved through continuous training and encouraging self-directed learning after they take on teaching responsibilities.

Instrument

The study employed a questionnaire as its primary tool, targeting trainee teachers to assess their cognitive and behavioral representation of gender mainstreaming in educational practices. The questionnaire included carefully designed items aimed at assessing participants' knowledge, perceptions, and behaviors related to gender mainstreaming in educational settings. This tool focused on the following areas: (1) general information including gender and educational level, (2) gender knowledge and awareness, this section aims to measure the level of knowledge and awareness of gender mainstreaming among trainees, (3) implementing a gender-responsive pedagogy determining the perspectives of trainee teachers regarding the implementation of gender-responsive teaching methods, and (4) developing gender attitudes to clarify the views of trainee teachers on developing behaviors related to gender mainstreaming.

In this questionnaire, we exploited The Teacher Efficacy in Gender Equality Practice (TEGEP) scale of Miralles-Cardona et al. (2022), which is a scale designed and validated by the authors to measure self-efficacy in teaching for a Sustainable Development of gender equality, it consists of three criteria, each comprising several indicators, measured on a 6-point Likert scale. This Likert-type scale ranges from 6 to 1, with the first three scores expressing agreement, ranging in strength from *strongly agree* to *slightly agree*, the last three scores express disagreement, from *slightly disagree* to *strongly disagree*. All parts of the instrument were translated into Arabic by translation experts. As for the reliability of the research tool, we used the SPSS Program and found that it was excellent (Cronbach's alpha coefficient = 0.946).

Limits of study

One of the limitations of this study is its geographical and temporal scope, which is confined to Regional Training Centers in Morocco during a specific period, which is the training season 2023/2024.

Results and discussion

Knowledge and gender awareness

The first axis focused on measuring the extent of the trainees' knowledge of the following.

The participants showed an awareness of gender concepts, with 67.5% of females and 68.6% of males agreeing that they are able to identify what is meant by "gender equality of opportunity" and 60.1% of females and 56.6% of males.

TABLE 1 Distribution of sample research by gender.

Genre	Feminine	Male	I'd rather not say	Total
Number	71	41	0	112
%	63.39	36.61	0.00	100

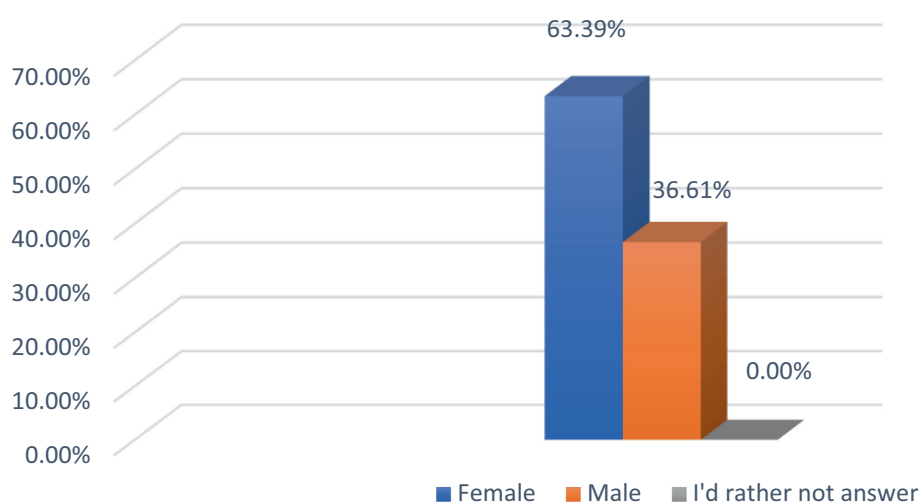
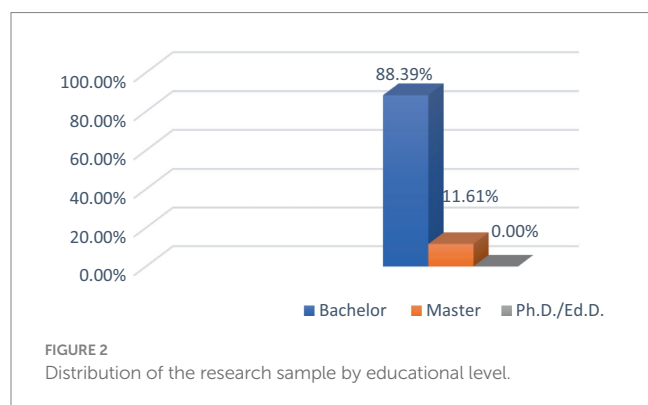


FIGURE 1
Distribution of sample research by gender.

of males agreeing that they are able to identify what is meant by “gender parity.” On the other hand, 88.8% of females and 92.7% of males expressed that they did not know the meaning of the statement “gender bias,” and

TABLE 2 Distribution of sample research by educational level.

Level	Bachelor	Master	Ph.D./Ed.D.	Total
Number	99	13	0	112
%	88.39	11.61	0.00	100



76.1% of females and 75.6% of males also disagreed with their ability to define the term “gender-based discrimination.” This high percentage may be due to the sample’s misunderstanding of the questionnaire items, as most of them were interested in the content of each phrase independently without linking it to the framing question, which focused on the extent to which the participants knew what the phrase meant. There was also a clear gap in understanding “gender roles,” as 68.6% of males and only 42.1% of females agreed that they knew this statement (Table 3).

Overall, this level of trainees’ awareness of gender-related concepts is insufficient, confirming the relative validity of the first hypothesis, which assumes that trainee teachers have not an awareness of the concept of gender, the results do not indicate a complete absence of awareness but rather insufficient one. Which consistent with UNESCO (2019) emphasis on the need to provide pre-service trainees with opportunities to learn gender terms and concepts by incorporating them into training curricula and syllabi.

Implementing gender-responsive teaching methods

The second axis focused on determining the perspectives of trainee teachers regarding the implementation of teaching methods related to gender mainstreaming. The results were as follows (Table 4):

TABLE 3 Sample perspectives on knowledge and gender awareness.

Item I can define, describe, identify, recognize, differentiate ...	Sex	SA	A	AS	DS	D	SD	Arithmetic average
		%	%	%	%	%	%	
1. Terminology related to gender issues	Feminine	10	11	11.3	22.5	18.3	26.8	2.92
	Male	10	5	26.8	31.7	7.3	19.5	3.2
2. Legislation on gender equity	Feminine	17	11	9.9	21.1	14.1	26.8	3.15
	Male	22	5	17.1	29.3	7.3	19.5	3.46
3. Gender equality vs. gender equity	Feminine	15	6	21.1	18.3	12.7	26.8	3.13
	Male	20	15	17.1	24.4	4.9	19.5	3.61
4. Gender roles	Feminine	15	6	21.1	18.3	12.7	26.8	3.13
	Male	44	10	14.6	12.2	4.9	14.6	4.32
5. Equal opportunities applied to gender	Feminine	39	13	15.5	11.3	5.6	15.5	4.23
	Male	44	10	14.6	12.2	4.9	14.6	4.32
6. Gender discrimination	Feminine	7	7	9.9	11.3	15.5	49.3	2.31
	Male	10	2	12.2	17.1	12.2	46.3	2.41
7. Gender parity	Feminine	31	15	14.1	14.1	8.5	16.9	3.96
	Male	32	10	14.6	22	9.8	12.2	3.95
8. Gender bias	Feminine	3	3	5.6	18.3	16.9	53.5	1.96
	Male	7	0	0	24.4	14.6	53.7	2
9. Sex and gender	Feminine	6	7	8.5	25.4	14.1	39.4	2.46
	Male	10	2	19.5	34.1	7.3	26.8	2.93
10. Gender inequalities	Feminine	11	15	15.5	8.5	7	42.3	2.89
	Male	22	10	4.9	12.2	4.9	46.3	2.93
11. Gender stereotypes	Feminine	6	3	15.5	22.5	18.3	35.2	2.49
	Male	5	2	12.2	36.6	7.3	36.6	2.51

SA, Strongly Agree; A, Agree; AS, Agree Slightly; DS, Disagree Slightly; D, Disagree; SD, Strongly Disagree.

Determining the results related to educational practices that take gender into account, there are differences in percentage, as it is high for those who agree with the item “Providing equal opportunities to all my students,” with 84.2% for females, and 78.4% for males, while it is low in the item “Taking action to prevent the reproduction or maintenance of inequalities,” as it is below average for females with 43.1, and 50.8% for males. These results demonstrate that the hypothesis: “The trainees’ educational practices do not rise to the level of supporting fairness and equality” is invalid regarding the positive gender practices of trainee teachers. But it is valid regarding the actions they take to prevent the reproduction or maintenance of inequalities.

The results also show that the majority of participants affirm the importance of including gender issues in educational content, with percentages exceeding 61.9% for females and 66.1% for males. These results indicate that there is a need to improve the curriculum at Teacher Training Centers, which agrees with what Cardona and other’s study emphasized in the need to adapt the programs of training Centers to the gender needs of faculty members (Cardona-Moltó and Miralles-Cardona, 2022). Also, it aligns with UNESCO’s assertion that “gender-responsive teaching is guided not only by pedagogic approaches but also by curriculum content, textbooks and other learning materials, which serve as vehicles for socialization” (UNESCO, 2019).

In the area of “Involving families in the implementation of school-home gender equality plans” to establish a gender approach, participants showed great interest, with the percentage reaching 70.7% among females and 51.1% among males. The same applies to “Collaborating with colleagues in gender equality plans implementation,” with percentages

reaching 66.1% among females and 51.2% among males. This highlights teachers’ awareness of the importance of family partnership in achieving school goals in general, and the gender approach in particular, as confirmed by many studies on the significant impact of the family institution on children’s development (Epstein, 2011).

Developing gender-related behaviors

The results demonstrate the participants’ ability and willingness to develop and build gender-related attitudes, confront forms of gender discrimination and injustice, and coordinate with associations and organizations for this purpose. With regard to the ability to “Convey/instill gender-sensitive attitudes,” the percentages of agreement for females reached 59.1% and for males 58.4%. These results, although average, are not, in our view, sufficient to spread awareness of the gender approach and ensure positive attitude related to it.

As for the ability to confront all forms of gender discrimination and the negative representations that produce it, the percentages of approval are generally high, reaching in the issue of the ability to “advocate against all forms of gender injustice” 73.2% for females and 63.3% for males. This indicates that the third proposed hypothesis, which states that trainee teachers are willing to engage positively in combating all forms of gender discrimination, is valid (Table 5).

In our view, this is an important indicator that future generations will be able to break away from all forms of discrimination or at least mitigate its severity.

TABLE 4 Sample perspectives on implementing gender-responsive teaching methods.

Item I am confident in ...	Sex	SA	A	AS	DS	D	SD	Arithmetic average
		%	%	%	%	%	%	
1. Providing equal opportunities to all my students.	Feminine	73	7	4.2	4.2	4.2	7	5.2
	Male	71	5	2.4	4.9	2.4	14.6	4.93
2. Planning strategies to teach with a gender perspective.	Feminine	24	13	12.7	14.1	8.5	28.2	3.45
	Male	37	15	12.2	12.2	0	24.4	4.02
3. Mainstreaming gender into course content and materials.	Feminine	27	18	16.9	11.3	4.2	22.5	3.85
	Male	32	17	17.1	9.8	4.9	19.5	4.02
4. Taking action to prevent the reproduction or maintenance of inequalities.	Feminine	21	8	14.1	18.3	14.1	23.9	3.32
	Male	34	7	9.8	9.8	4.9	34.1	3.54
5. Respecting the different gendered needs and styles of learning.	Feminine	49	21	9.9	8.5	1.4	9.9	4.79
	Male	54	7	4.9	12.2	2.4	19.5	4.39
6. Creating learning environments that foster gender collaboration.	Feminine	52	11	11.3	11.3	1.4	12.7	4.63
	Male	51	15	2.4	12.2	4.9	14.6	4.51
7. Designing, implementing, and assessing lesson plans with a gender perspective.	Feminine	20	27	7	16.9	8.5	21.1	3.69
	Male	24	7	17.1	19.5	7.3	24.4	3.49
8. Involving families in the implementation of school-home gender equality plans.	Feminine	37	14	19.7	7	11.3	11.3	4.24
	Male	24	10	17.1	24.4	7.3	17.1	3.68
9. Collaborating with colleagues in gender equality plans implementation.	Feminine	32	13	21.1	12.7	9.9	11.3	4.11
	Male	24	15	12.2	22	2.4	24.4	3.63
10. Educating on gender issues.	Feminine	48	11	14.1	12.7	1.4	12.7	4.54
	Male	39	2	12.2	17.1	9.8	19.5	3.85

SA, Strongly Agree; A, Agree; AS, Agree Slightly; DS, Disagree Slightly; D, Disagree; SD, Strongly Disagree.

TABLE 5 Sample perspectives on developing gender-related behaviors.

Item I am able to ...	Sex	SA	A	AS	DS	D	SD	Arithmetic average
		%	%	%	%	%	%	
1. Convey/install gender-sensitive attitudes	Feminine	31	14	14.1	16.9	7	16.9	3.94
	Male	27	7	24.4	19.5	2.4	19.5	3.78
2. Deconstruct gender stereotypes and prejudice.	Feminine	37	14	12.7	11.3	5.6	19.7	4.06
	Male	41	10	14.6	12.2	4.9	17.1	4.2
3. Confront existing tolerance toward gender discrimination and violence...	Feminine	35	14	12.7	12.7	5.6	19.7	4.01
	Male	46	7	9.8	7.3	9.8	19.5	4.15
4. Advocate against all forms of gender injustice.	Feminine	56	13	4.2	9.9	4.2	12.7	4.69
	Male	51	5	7.3	7.3	4.9	24.4	4.17
5. Support school-community links to promote gender equality.	Feminine	35	14	15.5	8.5	8.5	18.3	4.04
	Male	37	17	14.6	2.4	7.3	22	4.07

SA, Strongly Agree; A, Agree; AS, Agree Slightly; DS, Disagree Slightly; D, Disagree; SD, Strongly Disagree.

Conclusion

After presenting, analyzing, and discussing the results in relation to the study’s hypotheses, several key conclusions have emerged. First, the trainees show a strong awareness of the importance of applying equal opportunities across genders and a moderate understanding of concepts related to gender mainstreaming. In terms of teaching methods, the study results revealed that trainees are particularly focused on providing equal opportunities in teaching, respecting the different learning needs and styles of each gender, and creating learning environments that foster gender cooperation. Finally, the study results concluded that trainees are highly committed to promoting attitudes that recognize gender differences, challenging gender stereotypes and biases, and actively working against the normalization of gender-based discrimination and violence. They strongly opposed all forms of gender injustice and support strengthening the connections between schools and communities to promote gender equality.

Recommendations

Based on our findings, and our experience, we propose these recommendations for moving forward to promote gender equity practices in primary teacher education. First, ensuring that trainees, during their foundational education at universities, are equipped with sufficient academic knowledge to foster positive attitudes toward this issue. This should be considered both in the requirements for admission to teacher training institutions and in the foundational training modules. Second, incorporating gender mainstreaming awareness into training programs, activities, formats, and methods. Third, developing the competencies necessary to integrate gender education and teaching it to students, whether in planning lessons, managing them, or assessing them. Fourth, programming extracurricular activities for students that deepen their knowledge of gender mainstreaming and enhance their awareness of it during their training and after graduation. Fifth, directing the graduation research conducted by trainee teachers at the end of their training toward this issue to diagnose reality, identify gaps and problems, and propose solutions to address and overcome them. Undoubtedly, these measures will set trainee teachers on the right path and

enhance their cognitive and behavioral competencies on the subject. We propose also opening up to the experiences of some leading countries in the field of integrating a gender approach.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

MC: Writing – original draft, Writing – review & editing. HB: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. ME: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. KA: Formal analysis, Methodology, Writing – original draft. AM: Methodology, Writing – review & editing. JR: Visualization, Writing – review & editing. OA: Formal analysis, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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