Abstract
The educational system plays a key role in the reproduction of gender inequality, as it transmits sexist norms and stereotypes on a daily basis. Gender-sensitive education seeks to transform educational contents and practices in order to create school environments where the principles of respect, equity and social justice prevail. The objective of this paper is to examine the agroecology curriculum taught at the Universidad Autónoma Chapingo.
Autónoma Chapingo, Mexico. Data was obtained through a survey, content analysis of course syllabi, and in-depth interviews. Results identified an androcentric bias in teaching contents, and gender discrimination in classroom interaction. It is concluded that gender mainstreaming in higher education is essential to counteract sexism and other forms of social inequality.

Keywords: gender, higher education, formal curriculum, hidden curriculum, agroecology

Resumen

El sistema educativo es clave en la reproducción de la desigualdad de género a través de la transmisión cotidiana de normas y estereotipos sexistas. La educación con perspectiva de género busca transformar estos contenidos y prácticas para crear un ambiente escolar basado en el respeto, la equidad y la conciencia social. El objetivo de este artículo es presentar los resultados del diagnóstico realizado al programa de la carrera de Agroecología impartida en la Universidad Autónoma Chapingo. La información fue obtenida a través de una encuesta, entrevistas a profundidad y análisis de contenido de algunas asignaturas. Los resultados identificaron un sesgo androcéntrico en los contenidos de enseñanza, además de discriminación de género en la convivencia en el aula. Se concluye que la transversalización de la perspectiva de género en la educación superior es clave para contrarrestar la discriminación sexista y contribuir a formar un estudiantado sensible a esta y otras formas de desigualdad social.
Introduction

The educational system plays a key role in the reproduction of gender stereotypes transmitted through educational content and practices. According to Caicedo and Calderón (2016), formal and hidden curricula have the power to shape the scientific training, worldview and life project of generations. Unfortunately, most of the existing curriculum ignores women’s contribution to historical events and scientific advancement (Chaves, 2015). Feminists have called for the need to mainstream gender in the curricula and teaching strategies of all disciplines in order to create societies with gender equality (Ayala, 2008; Caballero, 2011).

This paper examines the agroecology curricula (both formal and hidden) taught at the Universidad Autónoma Chapingo, Mexico (UACh for its Spanish abbreviation). Since its inception, the program has stood out for its focus on social justice and sustainable development (UACh, 2020); the university’s website defines agroecology as a “transdisciplinary and intercultural science with a gender approach” (UACh, 2022). The purpose of the paper is to analyze the extent and scope of this assertion.
Universidad Autónoma Chapingo: Background and main characteristics

UACh is a public institution located in central Mexico, approximately one hour drive from Mexico City. It offers three levels of education: middle school, undergraduate and graduate. Student selection prioritizes the lowest-income students who achieve the highest scores in the admission exam conducted in all regions of Mexico. Full scholarships are given to them throughout their whole program, provided that they maintain good grades. Thus, the UACh is made up by a very diverse group of students coming from all over the country.

The UACh, previously called the National School of Agriculture (NSA), was founded in 1854. To the present day, it offers mainly agronomy-related degrees (soil, forestry, plant and animal sciences, among others). Since its creation, UACh received only male students and offered military training. During the 1960’s UACh started to admit female students, and in 1978 it was officially transformed into an autonomous university. Despite these changes, its highly masculinized culture prevails, as shown in various studies on gender violence occurring on campus (Chávez et al., 2007; Vázquez & Chávez, 2008; Castro & Vázquez, 2008; Vázquez & Castro, 2008; Vázquez & Castro, 2009). Another important characteristic of the UACh is the prevalence of gender segregation in career choice (Segura & Chávez, 2016; Chávez, 2020), particularly among native students who face not only gender but also ethnic and class discrimination (Chávez, 2008).
The agroecology undergraduate program formally began its activities in August 1991 as an interdepartmental degree. Courses were taught by a group of professors working in different departments. In 1999, the Agroecology Teaching, Research and Service Department (DEISA for its Spanish abbreviation) was created. Curriculum was designed to offer a scientific, technical and humanistic training that places paramount importance on participatory methods. Students opting for an agroecology degree are generally interested in the promotion of sustainable agriculture through horizontal communication with food producers, peasant communities and organizations (UACH, 2022).

The agroecology curriculum map is composed of various kinds of components taught in eight semesters over a four-year period: 1) compulsory and optional courses; 2) tutoring sessions; 3) continuous seminars. This design seeks to provide students with the necessary tools to characterize family-scale agroecosystems while seeking to promote environmentally friendly food production and fair trade (UACH, 2022).

**Theoretical approach: Towards a feminist agroecology**

The term “agroecology” was first used in the early 20th century. At that time, it was defined as the application of ecological principles to agricultural practices. In present day, the meaning of this term has been broadened to include social and economic issues. During the 1970's, agroecology became a social movement that problematized
the damages caused by the intensive use of agrochemicals, water pollution, deforestation and land grabbing practices. This shift was very positive since it contributed to redefine public policy and rural development throughout Latin America (Chiappe & Salgado, 2014; Siliprandi, 2014).

Puleo (2013) defines agroecology as the set of disciplines that analyze and act upon agroecosystems with a long-term focus on sustainability. The agroecosystem can be seen as a geographic unit where complex relationships between climate, plants, animals and humans come into play. To fully grasp these relationships, it is necessary to analyze the interactions between nature and society from a historical perspective. Feminists have argued that this analysis must also consider power relations within the household and the community, as well as women’s autonomy and empowerment (Zuluaga & Cárdenas, 2014). By rendering gender inequalities visible, agroecology has further broadened the action scope and transformation potential of agroecology (Pérez et al., 2014).

The term gender is defined as a social construction that dictates appropriate behavior for women and men in any given society. The category is useful to understand not only the power relations between the sexes, but also other forms of inequality that interact with gender: ethnicity, race, class and age. From a methodological standpoint, gender analysis seeks 1) to determine women’s condition and position vis-à-vis that of men; 2) to analyze women’s access to and control over resources, institutions and services, as compared to men; 3) to establish the factors that lead to gender inequality in
various spheres of society; 4) to identify the actions required to produce more equitable relationships (Martínez and Díaz, 2005).

Feminist agroecology poses a challenge to traditional teaching contents and practices. Gender mainstreaming in education implies at least two drastic moves: redesigning curricula and course syllabi, and favoring gender equality in educational settings within and outside the classroom (Caballero, 2011). In other words, both formal and hidden curricula must be addressed if we want to achieve long-term transformations.

Formal curriculum refers to the academic and administrative planning involved in program requirements and study materials (Uquillas, 2015). Prévost (2019) has developed three indicators to measure the levels of androcentrism in agroecological curricula:

1. Self-citation. Men cite themselves much more often than women. In a paper on the history of agroecology written by Susan Hecht, only one out of her 491 references are self-citations, in stark contrast with Miguel Angel Altieri, who in a similar chapter cites himself 17 times out of a total of 112 references existing in his bibliography. Needless to say, Hecht read five times more papers than Altieri, precisely because of her lack of authority in the discipline, which in the case of Altieri is assumed to be unquestionable.

2. Privileged citations of (male) leaders. Most authors cite the male “leaders” of the discipline, while female scientists only account for 0%-12.5% of citations. This widespread practice makes most female authors invisible, thus generating a systematic underestimation of women’s contributions to agroecological science.
3. Women’s roles as co-authors. Men are the central actors in most agroecological publications while women, if any, tend to be considered “collaborators”. This practice leads to the “Matilda effect”, defined by Prévost (2019) as the persistent tendency to attribute women’s scientific contributions to their male colleagues.

Finally, hidden curriculum focuses on the learning process, in particular, the gender attitudes and assumptions existing among various school actors (teachers, administrative personnel, classmates) (Maceira, 2005). Gender stereotypes are daily transmitted through verbal and nonverbal communication, thus contributing to the reproduction of women’s subordination. So-called “neutral” criteria such as performance, capacity, competence and achievement discriminate against women and other oppressed groups. In short, the hidden curriculum structures the social relations in which women learn to define their self-worth, merit and life project (Maceira, 2005).

Research methods

Three methods were used in this study: a survey conducted with a closed-ended questionnaire, content analysis of four course syllabi of the 36 that make up the program, and 12 in-depth interviews. This section describes each method used.

The study universe for the survey was 263 individuals, of which 69 are current students, and 194 have already graduated. They were contacted by e-mail because research was conducted during
the COVID-19 pandemic, when the university was permanently and indefinitely closed. Seventy-seven individuals (nine current and 68 former students) answered the questionnaire which was processed using the Excel program.

Of the 77 individuals who responded the questionnaire, 37 are women and 40 are men. Their ages range between 21 and 47 years, with the most frequent being between 21 and 30 years of age (65% of the sample). Regarding their state of birth, 21 different ones were counted, with a predominance of the State of Mexico (22%), followed by Mexico City, Oaxaca, Puebla, Veracruz and Chiapas. Only 7% of the surveyed students identified themselves as Afro-descendant, while 21% said they belonged to a native group, chiefly Nahuatl and Zapotec. Thirty-three percent are self-employed in various activities related to their academic training; 30% work in government or private agencies; 9% in non-governmental organizations; 5% are unemployed; the rest (22%) are current students, either at UACh or other institutions.

Second, four course syllabi were selected based on their relevance for the academic development of students; three out of these four courses are among their favorite ones. These are:

1. Agroecology and Complexity. Offered in the first semester. It is essential for students because it provides the theoretical foundations of agroecology, including the principles and lines of action that are considered necessary to achieve sustainable food production.
2. Agroecosystem Assessment. This course is offered in the third semester. Its purpose is to train students in the use of participatory methods, quantitative and qualitative data collection, and agroecological evaluation.

3. Economics of Production Units. This course is also offered in the third semester. Its objective is to analyze household decision-making from an economic standpoint, and to compare the financial strategies of different types of productive systems. This course was chosen because it has a household component, and it deals with the economic dimensions of agroecology.

4. Management of Sustainable Agroecosystems. Offered in the fourth and last semester as the continuation of Agroecosystem Assessment. Here, students are trained to implement participatory methods and to design an agroecological intervention in real settings.

The indicators used to conduct the content analysis are: a) use of gender-sensitive language in the course syllabus; b) incorporation of a gender perspective in the analysis of food systems; c) presence of women as key actors of agroecological change; d) distribution of female authors vis-a-vis male authors in reading lists.

Finally, twelve in-depth interviews with students (seven women and five men) were conducted in order to further explore their reasons to study agroecology, their original expectations of the program, and their overall evaluation of their experiences as students. This material was transcribed and thematically coded. Participant names have been kept confidential due to the sensitive nature of the information provided.
Content analysis yielded the following findings: a) all four course syllabi use androcentric language; b) none of the course syllabi analyze food systems from a gender approach; c) women are not mentioned as key players of agroecology in any course syllabus; d) 28 male authors and one female author were quantified in the four course syllabi, which means that 97% of the reading lists are composed by men and only 3% are women. As for co-authorship, only two female authors appeared in second or third place of participation. The same schools of thought are constantly repeated in academic contents, all of them initiated by men: Efraín Hernández Xolocotzi, Miguel Altieri, Stephen R. Glissman, Eduardo Sevilla Guzmán and Jaime Morales.

Androcentrism in agroecological curricula reifies male authors as the only legitimate subjects of agroecology. Renowned female authors such as Shiva (1995, 2003), Velasco (2010), Puleo (2012, 2013), Chiappe and Salgado (2014), Zuluaga and Cárdenas (2014), Siliprandi (2014), Costa et al. (2019) and others are non-existent in reading lists, despite the fact that feminists have insisted for at least a decade on the need to incorporate gender analysis in agroecological theory and practice. The underestimation of women’s scientific contributions creates negative identities among female students who are unable to see themselves as knowledge producers, thus contributing to their further exclusion in formal education (Tena et al., 2010; Sánchez et al., 2016).
Interestingly, surveyed students evaluated gender contents of course syllabi in a more positive manner. More than half (62%) stated that female authors appear in their reading lists “sometimes”, “frequently” or “always”, while 66% stated that women’s contribution to agroecology was adequately addressed. In turn, only 38% indicated that gender specialists were included in course syllabi. Female students were more critical than men; they answered “never” and “rarely” in the three questions more often than their male classmates. However, the differences are not significant enough to speak of an emerging gender consciousness among female students. Rather, the prevailing views of gender contents in course syllabi illustrates the naturalization of androcentrism among the whole student body.

**Hidden curriculum**

Information for the analysis of the hidden curriculum was obtained through the survey and the interviews. The former showed that women are more likely than men to experience violence and discrimination in various forms. The most common ones are: 1) sexually degrading images in posters, wallpapers and other images; 2) jokes, comments and uncomfortable questions about their physique, sex or love life; 3) lustful staring and unsolicited gestures; 4) unwanted catcalling; 5) groping or physical contact; 6) unwanted phone calls, emails or messages; 7) verbal pressure to accept invitations outside the classroom; 8) verbal pressure to have unwanted sex; 9) threats and intimidation; 10) use of physical force. Women
reported a total of 113 such experiences, in contrast to the 40 mentioned by men.

The three most representative responses among women were the following (in order of importance): “lewd staring or gestures that made you uncomfortable”; “uncomfortable jokes, comments or questions about your physique, sex or love life”; and “unwanted catcalling”. It is worth noting that there was only one case of “use of physical force”, and the person who reported it was a woman with a dissident sexual orientation. In the case of men, the three most frequent types of harassment were: “jokes, comments or uncomfortable questions about your physique, sex or love life”; “threats or intimidation”; and “lewd staring”. The types of harassment that men did not select were “use of posters, computer wallpapers and other images of a sexual nature that made you uncomfortable” and “phone calls, e-mails or messages of an unwanted nature”.

The interviews allowed to analyze the impacts of these experiences on women’s daily lives, as illustrated by the following testimony provided by a female student who preferred not to disclose her name:

> Agroecology professors grade based on what they see, and honestly, I have benefited from that a few times... On a study trip, a professor showed interest in me, in a very insistent way; he wanted to know in which hotel and with whom I was going to stay, until I stopped him (...) classmates told me that the professor kept staring at my lace underwear that came
out of my pants when I bent over. I didn’t notice that, but I did notice that he kept staring at my breasts in the classroom, when I wore low-cut necklines.

Another woman shared the difficulties she experienced when dealing with her responsibilities both as a student and as a mother, in addition to the endless discrimination that she faced due to her age (37 years old).

Many times, they made fun of me, they talked behind my back and questioned my abilities (...) I had to make a great effort. There were times when I felt that I would not be able to continue studying and taking care of my daughter, but well, I am now into my last year. This student also asked that her name be withheld.

According to the survey, the actions that women took when they felt harassed were: 1) I moved away/evaded; 2) I refused/expressed my displeasure; 3) I told someone; 4) I asked a professor for advice; 5) I filed a complaint with the corresponding authorities; 6) nothing. The women who did not take any action gave the following reasons: “I felt uncomfortable, but I did not know that these were acts of symbolic violence, and I did not know how to react”; “for foolish words, deaf ears”; “I did not have the courage to expose the person and ask for respect”. In short, the women remained silent for fear
that their experiences would be minimized due to the normalization of gender violence.

The interviews also shed light on the subtle mechanisms through which women are discriminated against in academic settings. Men are entitled to use power over women, taking advantage of their positions of authority. Most of the times, women are silenced and violence is naturalized (Millán, 2001). These results show the need to implement gender awareness programs for students and university staff, and to create safe spaces for women to express their concerns.

**Conclusions**

The analysis of formal and hidden curriculum of the agroecology program taught at the UACH confirmed the prevalence of androcentrism and gender violence, with women suffering greater experiences of discrimination and harassment than men.

Mexico’s General Law of Education establishes the importance to fight discrimination and violence against women. The law highlights the need to promote institutional changes in all the educational spaces of the country, focusing on both study programs and teaching practices. Gender mainstreaming in curricula and adequate channels for discrimination complains must be promoted and created. As one of the most important agronomic universities in the country, UACH has a great deal to contribute to this process. The analysis presented in this article, in conjunction with other initiatives, will undoubtedly contribute to achieve this important and necessary transformation.
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