# Learning to Teach, Teaching to Learn: A Self-Study to Promote Gender Awareness through Debates in Teacher Education

Celina Salvador-Garcia<sup>a</sup>

<sup>a</sup>University Jaume I, Spain

Contact Celina Salvador-Garcia <u>salvadoc@uji.es</u>

# ABSTRACT

Education should encourage active citizenship through a critical and transformative lens to promote a more just, equal, and inclusive society. This article presents a self-study that examines my teaching practice as a novice teacher educator. It describes my first experience using debates to discuss gender inequalities through critical pedagogy. With this study I aimed to answer: (1) What can I learn from my first attempt to use debates that focus on gender issues in teacher education to improve my teaching practices based on critical pedagogy? and (2) How can participation in debates frame pre-service teachers personal and professional views on gender issues? Data collection methods included the teacher diary, students' surveys, exit slips and a group interview. Data analysis encompassed both more traditional techniques (i.e., data analysis spiral method) and more complex and relational methods (i.e., thinking with theory). Findings are presented through a visual network showing the connections among three categories: tensions to improve, positive lens, and awareness of gender issues. This article, therefore, makes public the knowledge built and created through my experience so that it can inform my (and potentially others') future practice. Findings show that debates offer a variety of benefits for teacher education in terms of both pedagogical insights and raising awareness about critical issues. However, debates are not magic formulas, and they may not serve nor impact all pre-service teachers in the same way.

# Keywords

teacher education, critical pedagogy, active learning, debates, gender

The Version of Record of this manuscript has been published and is available in

Studying Teacher Education <2023>

http://www.tandfonline.com/10.1080/17425964.2022.2149482

This article examines my transition from elementary school teacher to teacher educator. During my time as a schoolteacher, I noticed first-hand that some teachers still seemed to be anchored in transmitting technical skills or a set of decontextualized competences (Dunbar & Yadav, 2022; Savitz et al., 2021; Strom et al., 2018; Thacker et al., 2017). However, according to Wood et al. (2018), education should promote active citizenship through a "critical and transformative" approach and be committed to a more just, equal, and inclusive society. Against this backdrop, I decided to apply for my new role in a public university, to do my bit and try to act as a lever for change by sharing this view of education with the generations of teachers to come with whom I would be working.

Teacher educators' pedagogical practices emerge as significant and underresearched tools to improve teacher practice (Kavanagh & Danielson, 2020). In order to cultivate and orchestrate knowledge, relationships, skill, judgment, and an understanding of social justice, teacher educators should not be restricted to conveying a humanistic approach by encouraging their student teachers' awareness of equity. In fact, taking action for democracy, empowerment, or critical reflection should be promoted (Knijnik & Luguetti, 2021). Consequently, this article presents how I, as a novice teacher educator, wrestled with pedagogical practices and adapted them to foster social justice and broader concerns among pre-service teachers in the hope that they would gain experience in this approach that might eventually inform their teaching practices.

I decided to engage in this enterprise by carefully examining my own practices, to share the messiness of the process through which I aspire to learn to teach while I teach to learn. Therefore, I wanted to start this new adventure "teaching and researching practice in order to better understand: [my]self; teaching; learning; and the development of knowledge about these" (Loughran, 2004, p.9). Similar to Marin (2014), I wondered if it would be possible to encourage pre-service teachers to tackle social injustices, and debates seemed to offer a way to achieve this. Particularly, my goal was to gain a deeper understanding of how, as a teacher educator, I could support future teachers in developing such an awareness about the pedagogical use of debates while discussing gender inequalities. I am motivated by a commitment to self-improvement, and look forward to hopefully refining my approach to gauge the need for promoting critical and transformative education.

Before I describe the theoretical framework, I want to highlight my own subjective positionality. I am a white, cis-gendered straight female from a working-class background and my perspectives on teaching, learning, and the power of education are also influenced by the 4 years I worked as a primary teacher. All these factors influence my positioning and, as a teacher educator, I am committed to preparing pre-service teachers to challenge the inequitable social systems ruling our lives. It is this commitment that motivated me to conduct this research. For this purpose, I decided to engage in a process of self-study of my teaching practice and enhance it with the information of the findings obtained.

# **GENDER (IN)EQUALITY AND CRITICAL PEDAGOGY**

Working toward social justice in the educational field involves covering two aspects: (1) the structural social processes that contribute to inequitable conditions in the society, and (2) the ways through which they are reproduced (North, 2008). There are a number of human traits that may be subject to discriminations such as gender, race, religion, ethnicity or disability. This article is focused particularly on the former because eliminating gender-based violence is a priority for the United Nations and there is an

urge to eliminate the many root causes of discrimination that still curtail women's rights (Anjum et al., 2021). In Spain, the context where this research is set, many women are still being harassed day after day (Pastor-Gosálbez et al., 2021). Society should not ignore this situation. In fact, the momentum builds for critical approaches to pedagogy, curriculum, and teacher education that truly tackle social injustices (Domínguez, 2021). Teachers' education is not assumed to be "depoliticized" anymore (Giroux, 2018). Thus, critical pedagogies emerge as an opportunity for preparing teachers to become educators with social and political responsibilities through the exercise of their own teaching practices, since this approach may enable them to put forward taken-for-granted ideas related to gender inequality, and develop an understanding of the relevant role of the teacher.

Although some voices claim that critical pedagogy might tend to subscribe to linear conceptions of phenomena (Frost, 2011) or privilege discourse over materiality (Braidotti, 2019), this article considers critical pedagogy as a way to provide an opportunity to think differently about teaching and classroom activity. Through this lens, teachers and students are led to consider the myriad of factors subject to social structures and power conditions, since critical pedagogy is related to social justice and critical perspectives. Although this position generates tensions in some educational contexts (Gerdin et al., 2018), gaining critical consciousness is the goal of Freirean education, and it could be described as having four qualities (Shor, 1993, pp. 31-32):

- (1) *Power Awareness*. Understanding that society and history can be made and remade by human action; discovering who exercises dominant power and why, and how this power is organized and used in society.
- (2) *Critical Literacy*. Engaging in the thinking or discussing beneath surface impressions or myths; understanding the social contexts; noticing the deep meaning of any event; applying these ideas to one's context.
- (3) *Desocialization*. Realizing about and challenging the myths, values or behaviors that dominate mass culture; critically examining the regressive values operating in society, which are internalized in our consciousness.
- (4) *Self-Organization/ Self-Education*. Taking the initiative to transform schools and society away from authoritarian relationships and the undemocratic, unequal distribution of power; taking part in and initiating social change projects.

Bearing these ideas in mind, critical pedagogy may allow pre-service teachers to question their assumptions and reflect on biases, leading them to restructure knowledge while considering oppressive societal structures (Doucette et al., 2021). This framework has previously been linked to the reflection on gender inequalities in higher education (Andrews, 2020; Mojica & Castañeda, 2021). Therefore, applying critical pedagogy with a focus on gender awareness may empower future teachers "to act through reflection and deconstruct the structures of gendered privilege and power" (Spear & da Costa, 2018, p. 203), in other words, to approach the teaching and learning process while considering the principles of equality that drive feminism.

### **DEBATES AS A PEDAGOGICAL APPROACH**

The teaching practices enacted by individual teachers have deep social roots. In fact, teachers do not merely reproduce social norms, but they may become agents of social negotiation and production themselves (Latour, 1993). "Preparing teachers as social justice educators therefore involves developing their capacity to acknowledge and respond to institutionalized patterns" (Kavanagh & Danielson, 2020, p. 74), by paying attention to the day-to-day work of teaching in a school, for example (Domínguez,

2021). Accordingly, teacher educators should provide their students with opportunities to put knowledge and beliefs into action (Grossman et al., 2009). As a consequence, teacher educators need to examine their own practices and beliefs to help their students understand the great power they will have once in school (McCarthy, 2018).

In this sense, Freire (2005) asserts that dialogical approaches may be used as instruments of liberation, and research highlights the benefits of pedagogical practices that involve students' voices through discussion, argumentation, and deliberation (Savitz et al., 2021). Among other learning strategies, the academic debate is a particularly interesting technique, that builds on socio-constructivist theory on the premise that knowledge is subjectively and socially constructed and may promote the development of critical thinking abilities in addition to content and civic learning (Alén et al., 2015; Maldonado et al., 2020; Savitz et al., 2021).

Although a debate can take multiple forms, it may be considered a structured discussion engineered to generate a "clash" or disagreement surrounding an idea (Savitz et al., 2021). Debates seem to motivate students' learning through preparation, presentation, and the defense of their ideas, while promoting classroom participation, and providing the audience the opportunity to learn from their observations (Alén et al., 2015). According to Beane (2016), debates have the potential to transform community beliefs and raise awareness because of the possibility they offer of developing student civic identity and engagement, given that debate "is about identity, youth culture, and social justice" (Cridland-Hughes, 2016, p. 49). However, the teaching-learning process is complex, contextually situated, and subject to the specific features of the participants, among other aspects (Strom et al., 2018). For example, when using debates, teachers may struggle to support *all* student learning (Savitz et al., 2021), since there are no panaceas in education, and debates may not fit all learners to the same extent.

Despite this, when they are applied in teacher education, debates may have the potential to promote academic, linguistic, and soft skills. Moreover, pre-service teachers may come to consider them as a pedagogical tool for their future teaching practice (Maldonado et al., 2020). Therefore, the use of debates might be an appropriate tool to help future teachers think critically and encourage them to adopt critical approaches in their future careers.

Debates are not subject to a specific format, since they may vary depending on the context and the objectives pursued (Grossman et al., 2019; Savitz et al., 2021). However, it is generally considered that debates should include three basic steps (Sánchez, 2006): initial statement (thesis), refutation (antithesis) and conclusion (synthesis). This structure enables generating a "clash" and promoting discussion among students. In this sense, according to Andrews (2020), the potential of this type of dialogue is high and educators should purposely include discussions regarding gender issues in their lessons. In his opinion,

While not every discussion will end in the student "changing their mind", the productive critical reflection that becomes possible can have major impacts on transforming public discourse on gender and sexuality, and might allow for the pre-service teachers to become agents of change when they teach in schools and interact with young people, even if just in small acts of affirmation, normalization, and empathy. (pp.16-17)

Therefore, if teacher educators are committed to adopt a social justice perspective through critical pedagogy in order to promote equity-oriented dispositions, engagement with thought-provoking and contentious issues relevant to schooling, the lives of learners, and teachers' work is fundamental (Martin, 2020). In this sense, pedagogical practices move from specification, through teacher education pedagogy, and may finally frame future teachers' own practices (Kloser et al., 2019). Considering this, I argue for the urgency of focusing on gender-conscious teacher education practices and ground this by discussing how debates could cultivate an active reflection on gender (in)equalities which could permeate students' praxis when they become teachers themselves.

Through this self-study, I aimed to improve my own pedagogical practice to foster the aforementioned ideas (Loughran & Russell, 2002). Moreover, it aspired to contribute to the professional knowledge within the teacher education field (Kitchen et al., 2020) through the construction, examination, and sharing of my experience (LaBoskey, 2004). I also investigated how, if at all, pre-service teachers are eager to take up what they learned in the debates tackling gender issues and social justice from a personal standpoint and/or when they join the work force in their future teaching careers. With these foci, I set out to answer the following dilemmas derived from my practice expectations:

D1. What can I learn from my first attempt to use debates that focus on gender issues in teacher education to improve my teaching practices based on critical pedagogy?

D2. How can participation in debates frame pre-service teachers personal and professional views on gender issues?

# METHODOLOGY

Self-study provides an opportunity to engage in the analysis of one's own practice by exploring what is happening and what the participants think about the practice in order to improve it (Kitchen et al., 2020). Therefore, self-study emerged as an appropriate approach to pursue the aims of this research, since it is focused on teaching and students' learning and thus, new findings and teachings are expected to interweave (Loughran, 2004). In this sense, the five elements of self-study outlined by LaBoskey (2004) characterized my work, as it was self-initiated and focused, improvement-aimed, interactive, used qualitative data sources, and validity was based on trustworthiness. Investigations regarding teaching practices that attempt to support equitable education must inform and be informed by critical examinations. This self-study, grounded in emancipatory educational theory (Freire, 2005), enabled me to analyze how I was "learning from teaching" by reflecting upon my work as a teacher educator. Therefore, it incorporated many characteristics of pragmatic philosophy, since the methods of research suit its context and/or situation, and knowledge generation occurs through action and experimentation. Particularly, this research was proposed to develop a critical lens to inform classroom practice and build a social justice-oriented praxis in teacher education. Self-study, thus, became my vehicle for examining myself in my new role and understanding the teacher candidates' experiences when participating in debates that tackled gender issues.

This self-study focuses on my first experience and attempt to use debates in teacher education. Therefore, the findings obtained will inform my (and potentially others') future practices. Particularly, the study was conducted over the course of a semester and included planning the course, teaching the course, data collection, and reflection and data analysis. Figure 1 shows the sequence followed in this study.

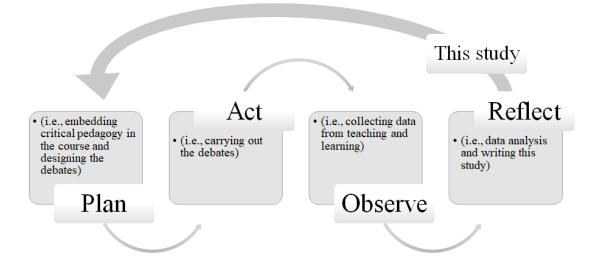


Figure 1. Sequence followed in this self-study.

## **CONTEXT AND PARTICIPANTS**

This self-study was conducted at a public university in Spain. The course "General Didactics" was carried out in the Spring semester of 2022 with first year pre-service teachers enrolled in the Degree of Early Childhood Education. Course goals centred on curricular elements, planning, and development. Moreover, I aspired to adopt a critical pedagogy stance in order to challenge students to consider social structures of marginalization and exclusion. To do so, among other aspects, I decided to use debates, and in this first experience, they were focused on gender issues.

Before each debate, students were given readings that dealt with education and gender, lectures on the topic of pedagogical resources highlighting how their selection and use are critical, and a grid with the procedures of the debate. This arrangement served to help pre-service teachers obtain basic concepts on the subject before the debate and let them know what their expected role in the activity was. The goal of the debates was to link pedagogical resources (content of the course) with gender issues (critical perspective). In other words, pre-service teachers were expected to reflect on how the selection and use of pedagogical resources could transmit (or not) gender inequalities, societal biases, etc. in the school. In addition, they were prompted to reflect on their future role as teachers and the impact they could have when selecting and using pedagogical resources.

Four debates took place in the classroom, students were divided into teams and three teams participated in each debate: two opposing sides and a moderator. This arrangement was selected in an attempt to enable all pre-service teachers to actively participate in one debate. Each debate revolved around a specific text that served as a prompt, but the questions posed were always the same. The discussions were intended to share and learn (Martin, 2020). Following the basic steps proposed by Sánchez (2006), the procedures of the debate included (a) initial statement, (b) refutation, and (c)

conclusion. Table 1 is an example of the grid students were given which shows the three steps and the actions each team was expected to carry out.

Participation in these debates was a classroom activity, but it was not graded and students were invited to be part of this study voluntarily. Seventy-one students (80,2% females) were enrolled in the class. The majority of them were white from middle and working-class backgrounds. Of these, 40 actively participated in the debates, and of those 39 agreed to complete an anonymous survey about the debates that had been carried out. In addition, five participants, who were representative of the larger participant group in terms of age, gender, and previous studies, took part in a group interview.

## **DATA COLLECTION**

Several qualitative methods of data collection were used. One of the data sources was the researcher journal (teacher diary), where I documented my own thinking during the course along with analytic reflections on my teaching experiences when carrying out the debates. Data were also drawn from students' surveys which were focused on reflecting on the use of debates. Pre-service teachers had to answer three open-ended questions: (1) What did I learn thanks to these debates? (2) What can I do as a teacher to promote gender equity in the school? and (3) Why could debates be (or not) an appropriate practice in teacher education? These surveys were anonymous.

In addition, after the completion of the debates, five participants agreed to be interviewed together. This group interview focused on participants' perspectives of what they believed was most salient in the debates. A semi-structured interview format was used because it allowed the students to provide detailed information, but at the same time I still had good control over the data received. The interview guide contained roughly fourteen open-ended questions. The majority of the questions were about students' perceptions and opinions regarding the debates that had been employed in the classroom. The interview consisted of icebreaker, general, specific, and conclusion questions. For instance, they were first asked ice-breaker questions (i.e., "What do you think is the most salient aspect of debates?"). Then, general questions were posed (i.e., "What have your personal thoughts and feelings been during the participation in the debates?"). The questions then became more specific (i.e., "How have the debates affected your understanding of gender issues?"). Finally, students were told to provide further information if they wanted. Besides these questions, I used probing questions to encourage the pre-service teachers to share further details, introspections, and ideas (Flick, 2014). Participants could review their transcripts and provide any clarification they deemed relevant. Other data sources were anonymous exit slips from students after class sessions and the course syllabus.

### DATA ANALYSIS

The analytical procedures encompassed both more traditional techniques as well as more complex and relational methods (Strom & Martin, 2022). Regarding the former, first, I followed the data analysis spiral method (Creswell & Poth, 2018). It began with data collection and preparation; thus, the interview was transcribed to have all the data set written down. Then, I reviewed all the data sources and engaged in multiple rounds of reading the texts. I carried out content analysis by reading through all the data set a minimum of three times. In the first round, data were read from start to finish. In the second round, I read the data from start to finish while writing memos and highlighting

significant key phrases. In the final round, the entire set of data was reread, and I compiled a written list of significant statements. After compiling this list, I organized the significant statements into broader units, also known as themes. A theme was defined as something that "captures something important about the data in relation to the dilemmas guiding this study, and represents some level of patterned response or meaning within the data set" (Braun & Clarke, 2006, p. 82).

However, I aspired to establish connections between the multiplicities drawn from each of these themes to better understand their links (Ellingson & Sotirin, 2020). Thus, subsequently, I engaged in a process of "thinking with theory" (Jackson & Mazzei, 2012). This way of "doing" qualitative inquiry is not affiliated with a standardized protocol. Indeed, it aspires to leave behind the imperatives that inhibit the inclusion of previously unthought information that limit interpretation, analysis, and meaning making. Through this analysis, a rhizomatic thresholding allowed questions to emerge and new meanings to be built. In addition, it reflected the dynamism of data and led to opening up thought. Regarding these ideas and to organize and show the results coherently, a visual network of results was designed, as it allows to visually establish nodes with links between them (Miles et al., 2014).

I addressed issues of research quality, including the triangulation of sources, searching for negative cases, questioning the findings and how these contributed to answering the dilemmas posed. Participants agreed upon the accuracy of the data collected through a member checking process gaining their perspectives on the meaning-making of the data, providing further nuances to my own interpretations. Data were anonymized and codes were given to the extracts presented in the findings section (i.e., instrument + number of the informant). These quotes are representative extracts of the participants' ideas used as examples. Moreover, the recognition of myself as an agent in the meaning-making contributes to the trustworthiness and transparency of the analysis (Aguinis & Solarino, 2021).

### FINDINGS

I aspired to answer two dilemmas from this self-study: (D1) what I can learn about my first attempt to use debates that focus on gender issues in teacher education to improve my teaching practices based on critical pedagogy; and (D2) how participation in the debates can frame pre-service teachers personal and professional views on gender issues. Figure 2 presents the findings through a visual network, showing the connections between the themes that emerged from these dilemmas (Miles et al., 2014). The intersections between these themes are described below in an attempt to better understand the phenomenon. Subsequently, the findings are organized around three categories: tensions to improve, positive lens, and awareness of gender issues.

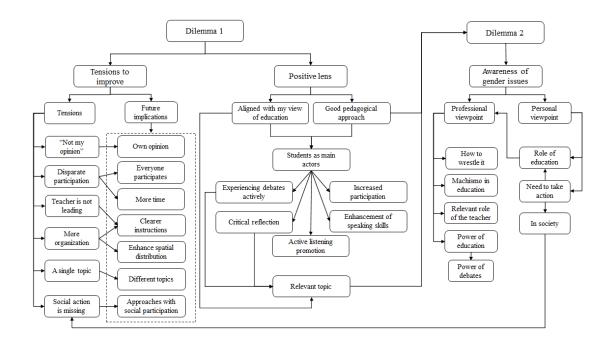


Figure 2. Visual network displaying the findings.

#### **TENSIONS TO IMPROVE**

Regarding the first dilemma, one of the categories of findings refers to a series of tensions that emerged. The thinking with theory process raised several tensions for me and I sought a way to better understand these tensions through self-study. Thus, thanks to the collaborative nature of this self-study, I could gather information to enhance my teaching practice.

One of the problematic issues identified was assigning sides for the groups to defend, since "a few groups had difficulties to defend their position" (Teacher's Diary). Stemming from this issue, a future implication could be "to not restrict the positioning. Although we (the groups) start sharing a common idea regarding *machismo*, there is much space for differing viewpoints" (Students' Interview-1). In addition, some preservice teachers considered that "when defending my ideas, much debate is possible" (Students' Interview-2).

Another tension detected was that some "students participated more than others" (Teacher's Diary). To solve this, data yielded two possible solutions. On the one hand, "devoting more time (in the debates)" (Students' Interview-5). On the other hand, "making it compulsory for everyone to say something" (Students' Interview-2). A further issue was that "many students expected me to lead the activity and tell them when to talk or give the floor to the groups" (Teacher's Diary), while a pre-service teacher considered that "a more organized debate could favor learning" (Survey-16). This had to do with me wanting the students to be the main actors in the debates and I expected them to self-regulate the activity. To tackle these concerns, clearer instructions could be given, because "at first, I (pre-service teacher) was unsure about our role in the debates" (Students' Interview-1). In addition, some students also mentioned spatial distribution as being key. For example, "being sat in a circle could help enhance the debate" (Students' Interview-5).

Focusing all debates on a single topic seemed to emerge as a difficulty for those students in the last groups because "many ideas had already been mentioned" (Students' Interview-1). Thus, they proposed "changing topics" (Students' Interview-1). A last cause for concern was that, despite promoting reflection, "debates did not entail an added social participation on the part of students" (Teacher's Diary). They thought of what they already do in personal contexts. For instance, a pre-service teacher expressed that she "celebrate(s) the 8<sup>th</sup> of March every year" (Students' Interview-2), while another said that he "engage(s) actively everyday with his family, *that* is (his) active contribution" (Students' Interview-1). Consequently, if teacher educators aspire to promote this social participation, future implications might lead to the use of "pedagogical approaches that do entail an active social action" (Teacher's Diary).

### **POSITIVE LENS**

Despite there being several issues that could be improved to enhance the debates, several positive aspects were identified too. First, I realized that debates emerged as a pedagogical technique aligned with my view of education. In fact, among other considerations, I noticed that "the lessons in which teacher talking time is shorter are the most enriching. Debates let me give all the relevance to the students while I remain on the side-lines guiding them towards reflection and self-education" (Teacher's Diary), while dealing with a relevant topic within today's society. The idea of debates being an appropriate pedagogical approach was also shared by many students. One of them reported that, "it (debate) is extremely useful to understand that each person may have a different perspective about the topic being dealt with. Indeed, it is great that we realize that each one has their own viewpoint" (Exit Slip-16).

Furthermore, when using debates, I noticed that "students participated more than usual in class" (Teacher's Diary). This perception was supported by some students too, who asserted that "debates are relevant because they allow *everyone* to express their opinions" (Exit Slip-7) entailing active listening and speaking. In fact, these two skills emerged as two of the benefits identified in this study. Regarding the former, I noticed that, when carrying out the debates, "students have listened more to each other than usual (in lessons without debates)" (Teacher's Diary); an idea that was endorsed by several pre-service teachers too. As they put it, "we have learned to listen and to be listened to" (Exit Slip-4). As a consequence, speaking skills also become essential and, according to one of the students, debates "let you learn how to speak in front of an audience and overcome embarrassment" (Survey-11). In this sense, some students highlighted these benefits by linking them to their future roles as teachers. For instance, one mentioned that, "a teacher must explain, share thoughts, possess oratory skills, know how to express ideas (...) a teacher must know how to speak, in my opinion this is tremendously important" (Students' Interview-2).

Another finding related to the benefit of debates was the promotion of critical thinking. In this sense, according to a pre-service teacher, when participating in a debate "you share opinions, discuss them, and you may be open to modify or reinforce your initial ideas" (Survey-1). Similarly, another student pointed out that debates "are really interesting, since they compel you to listen to your classmates and to reflect upon their arguments" (Survey-29). Therefore, it seems that some students were triggered by problematic ideas they had taken for granted.

The last benefit identified was that of active experimentation with debates, since pre-service teachers could actively experience what debates are. As they put it, "debates are very enriching, there are no correct nor incorrect answers, but different viewpoints and all of them should be respected" (Survey-38), and debates are "dynamic and help you understand the information better and faster than ordinary explanations" (Survey-32). In addition, some pre-service teachers conceived them as a pedagogical technique that they "could use in the future as a teacher" (Survey-1). In general, the majority of the pre-service teachers perceived debates from a positive lens. Although a few of them were not so enthusiastic because "being shy is an intrinsic characteristic" of some people (Students' Interview-1), and even one of them explained that she was "afraid of speaking in public" (Students' Interview-5); they still acknowledged some of their benefits.

## AWARENESS OF GENDER ISSUES

We move now to the second dilemma, which is connected to the previous ideas. In this sense, I hoped that these debates about gender issues and school would be generative. However, engaging with this type of content through a critical pedagogy approach in higher education teacher education was new for me. Thus, I was hanging in between confidence in myself as a teacher educator and uncertainty as to how the debates would unfold or how productive they would be in terms of students' awareness of gender issues. In this regard, for example, a pre-service teacher reported that "through debates, I have realized that gender inequalities are still present" (Survey-23), which is an idea that many other students reported.

This greater gender awareness was divided into two branches, since it affected both students' personal perspectives as well as their professional viewpoints as future teachers. However, thinking with theory let me establish some intersections between themes. Regarding the former, some students recognized that they had "been able to gain an understanding of different situations in which women are still invisible that (they) did not know" (Survey-19). But the impact of debates participation triggered further ambitions. Besides this greater awareness, several pre-service teachers were convinced that there is a need to engage and take action to tackle such inequitable conditions. In this sense, a student asserted that "nowadays there are still many inequalities and there is a need to fight against them to foster equality" (Survey-27), while another pointed out that she had "learned how I can contribute for these situations to change both in the classroom and society" (Survey-32). In other words, pre-service teachers understood the role of education in shaping and modifying gender beliefs and how they, as citizens, could contribute to this change. However, as mentioned before, they did not show any intention of engaging in civic action in the present. It is true, though, that several pre-service teachers did consider themselves as levers for change, at least in their future as teachers. In this sense, they understood the critical role of education in shaping society's beliefs and ways of acting. As one student put it, "there is still much to do to foster equity, and the best tool in this sense is education" (Survey-35).

In addition, moving now to the professional perspective, most of my students understood that there were many possibilities to tackle gender inequalities in the school. For example, one of them stated that "we must set a proper example, besides talking in the class about gender inequalities, we must put these ideas into practice to foster equity in our future classrooms" (Survey-34). Furthermore, a few students even added some ideas related to critical pedagogy as in the case of a student who asserted that "we may include thought-provoking projects to lead our students to think about little *machismos* that do happen in the school and out of it such as advertisements or cartoons" (Survey-35).

The following theme of the findings emerges in relation to this, *machismo* (a way of sexism entailing discrimination against women) in education, since some preservice teachers also acknowledged that "there are still many gender inequalities in the educational setting" (Survey-36). To overcome this problem, they highlight the critical role of the teacher as the educators of the generations to come. As one of the pre-service teachers put it, "we, as future teachers, must draw attention to gender inequalities in the school, since this is the place where children spend most of their time" (Survey-14). Therefore, it seems that debate participation was an eye-opening experience for some pre-service teachers.

Finally, we reach a theme emphasizing the power of education to tackle gender issues, and "debates were instrumental to understand that *machismo* is still alive, but education has the power to beat it" (Exit Slip-20). In addition, pre-service teachers acknowledged the pedagogical possibilities of debates in this regard. As one of them expressed, "debates are an appropriate activity for any school and level" (Survey-13). Thus, it seems that participating in the debates made some pre-service teachers consider this pedagogical technique as a possibility to use in their future practices, perhaps, to discuss gender issues.

### DISCUSSION

This study presents a series of findings that helped me answer the two dilemmas posed. A number of tensions were identified, and thinking with theory allowed me to find possible solutions (Jackson & Mazzei, 2012). For instance, having to defend an opinion that pre-service teachers did not share emerged as an issue, which is a problem found in previous studies, perhaps because of poor preparation on behalf of some students (Alén et al., 2015). Even though educators tend to be in charge of choosing the positions each team will defend in the debate (Alén et al., 2015; Maldonado et al., 2020), a future implication I will bear in mind consists of letting students defend their personal opinions, since sometimes it may be difficult to have compelling affirmative and negative arguments when defending ideas that one does not share (Savitz et al., 2021).

Another problematic issue detected was unequal participation. To overcome this, next time I may specify the amount of time a group is expected to use (Savitz et al., 2021; Spaska et al., 2021). Despite this, I realized that debates may not fit everyone, and there may be students who are not so prone to engage in them because of shyness or other features, and thus I cannot expect everyone to participate to the same extent. Furthermore, to enhance the organization of the debates, I may rearrange spatial distribution and give clearer instructions to ensure that all participants understand the procedure of the activity (Alén et al., 2015; Spaska et al., 2021).

Another tension shared by some students was related to the single topic chosen for the debates because several ideas were repeated. Bearing in mind the relevance of the topic dealt with in the debates (Sánchez, 2006), in the future, I could try to reach a consensus with students about additional topics to focus on (Alén et al., 2015; Savitz et al., 2021). The last issue identified was that, despite showing concern, pre-service teachers did not seem to be willing to take part in social actions to tackle gender inequality. Previous studies found an added social action out-of-class (Savitz et al., 2021) and, at some point, I expected this to happen. Nevertheless, it seems like a long way from participating in a classroom debate to taking social action. Indeed, as I later realized, this was out of my initial aspirations when using debates. Anyway, if teacher educators sought to generate an active social action among students, they could consider using pedagogical models that do entail this direct undertaking such as Service-Learning (Warren, 2012).

Although several tensions were identified, according to the findings of this selfstudy, it seems that not only did I as a teacher perceive positive aspects of the debates but so did most students, which is in line with previous literature on the topic (Savitz et al., 2021; Spaska et al., 2021). In addition, this pedagogical technique seems to be an opportunity to relegate the teacher to the background while allowing students to be the main actors (Alén et al., 2015; Doody & Condon, 2012). Therefore, it might be an appropriate pedagogical option for those teacher educators that, like me, want to ensure that students are central to their learning, aspire to trigger their involvement and interest, and enhance their critical participatory skills, including listening and speaking (Spaska et al., 2021; Savitz et al., 2021), which are critical for their future teaching work (Maldonado et al., 2020).

Critical thinking promotion seems to be an intrinsic characteristic of debates, since they create opportunities for students to question their assumptions and reflect on their own ideas (Doucette et al., 2021; Savitz et al., 2021). This is particularly valuable when the target content is relevant, not only for students' future, but also for society (Gerdin et al., 2018). In fact, gaining critical consciousness should be promoted among students and, in my case, debates let students comment on their current perspectives regarding gender issues, and probably lead to deeper engagement and understanding of this matter (Kloser et al., 2019). In this study, it seems that thanks to debates some preservice teachers increased their power awareness, critical literacy, and desocialization; three of the qualities of Freirean education (Shor, 1993). However, self-organization, the fourth asset, was not truly fostered since, as I mentioned before, students did not seem to be eager to take part in and initiate social change projects. This supports the idea that teacher education is complex and teacher educators should not get fixated on a particular pedagogical approach, but to embrace several of them to combine their strengths.

Regarding the last benefit identified, debate participation was a way to "learn by doing" (Dewey, 1938), as students could actively experience what debates are. In the field of teacher education, thus, debate practice may be a sensible pedagogical option since a teacher is a multiplicity of their own beliefs, previous preparation, and background experiences. If pre-service teachers participate in debates in higher education, these experiences will possibly influence and shape their own teaching (Strom & Martin, 2022); thus, they might consider using debates in the early childhood context, which is a powerful strategy to promote learning (Mérida et al., 2017), and these practices might be impregnated with the critical approach I was trying to share. All in all, I join others in the conviction that using debates in teacher education may come with a range of benefits (Maldonado et al., 2020; Savitz et al., 2021). However, each student, teacher, and context are different, and there are no one-size-fits-all approaches to education, and this includes debates.

The second dilemma is connected to the aforementioned ideas because debates tend to increase the self-perception of knowledge about the debate topics (Alén et al., 2015), and raising pre-service teachers' awareness of gender inequalities was one of my aspirations. In my case, debates seemed to trigger students to attend to the structural social processes that contribute to inequitable conditions and how they are reproduced (North, 2008), paying special attention to the educational setting. Therefore, these findings support the idea that debates may generate a transformation of participants' beliefs and raise awareness (Beane, 2016).

Several pre-service teachers recognized that there is a need to engage and take action to wrestle social injustices. Although previous studies have found that debate participation came with an active agency beyond the educational setting (Savitz et al., 2021), this was not the case for my students. Even though pre-service teachers did not seem to be willing to engage in social action from a personal perspective, this was different from a professional standpoint. In the case of my context, dealing with teachers' education, this becomes even more critical since their future teaching practices could be influenced by their own beliefs and experiences. Consequently, Strom and Martin (2022) call for social justice-oriented teaching methods in teacher education, and, regarding my findings, debates seem to be a sensible possibility in this sense, as most of my students understood that there were many possibilities to deal with gender inequalities in the school.

This is relevant, on the one hand, because pre-service teachers could recognize that education and curriculum are not neutral (Vasquez et al., 2019), and they understood how critical it is to explicitly deal with the concept of gender equality as well as how they may promote it or not in their future practices (Spear & da Costa, 2018). On the other hand, pre-service teachers could also perceive what gender inequalities look like, how they may be created in the classroom, and their crucial role as teachers. For example, in the early childhood context, classroom distribution, the stories we read or the words we use are critical. Therefore, this increased awareness could lead them towards identifying instructional decisions to attend to gender equality that tend to be ignored by novice teachers (Kavanagh & Danielson, 2020). This is relevant because pre-service teachers hold the potential to disrupt discourses of gender inequalities (Andrews, 2020), and their role is essential to build classroom settings that truly and explicitly deal with gender issues from a critical perspective (Namatende, 2021).

Regarding the previous ideas, students acknowledged the power of education to tackle gender issues, supporting Andrews' (2020) idea of giving gender issues greater focus in teacher education. In my particular case, participating in the debates made preservice teachers consider this pedagogical technique as a possibility to use in their future practices to discuss gender issues. According to Dziwa et al., (2022), dialogical methods, as is the case of debates, offer promise for critical engagement. Thus, students' participation in classroom debates could have shaped their own teaching practices, leading them to challenge gender bias in their professional future (Namatende, 2021). Nevertheless, one should be cautious because debates may not impact all pre-service teachers and/or their future teaching practices in the same way.

The shared ideas between the pre-service teachers' perspectives and my own viewpoints will be instrumental to improve future teaching practices (Fraser et al., 2022). Therefore, this study acknowledges the never-ending importance of examining the teaching processes to find ways to respond more effectively to the needs of my (and potentially others') students (Schwarz-Franco & Ergas, 2021), while also responding to the need to explore possible barriers that students and teachers face when performing debates (Maldonado et al., 2020). Concretely, debates were a "line of flight" in my teaching practices, letting me disrupt social discourse and making my students rethink how to address social injustices.

# CONCLUSIONS

In this particular historical moment, anti-gender rhetoric abounds in Spain. Thus, this article aspires to contribute to a much-needed conversation revolving around the use of

debates to tackle gender issues in teacher education to further its understanding and practice. This self-study, therefore, makes the knowledge built and created through my own experience public, including my experiences and the challenges I had to face as a novice teacher educator and the experiences of the students with whom I shared this process.

Research on teacher development should focus on both process and product, given that diverse perspectives may support forward-thinking (Strom et al., 2021). Regarding the process (D1), I learned that debates may be an appropriate pedagogical option to continue using in my (and potentially others') future practices in teacher education because of the benefits that this study identified. Nevertheless, several tensions that must be tackled were also pinpointed, because debates are subject to a series of limitations and may not work for everyone. Considering the research on the product of debates (D2), these did plant "seeds" that had an impact on the pre-service teachers' awareness and thinking about gender issues from both professional and personal viewpoints. Nevertheless, one cannot expect debates to turn all participants into critical pedagogues or propel them to engage actively in society to wrestle gender inequalities (Gerdin et al., 2018).

According to these findings, I can conclude that debates may be incorporated into teacher education courses as a way of transformative learning because of the benefits they may entail for pre-service teachers from both pedagogical and awarenessraising standpoints. However, the successful transfer of debates dealing with social justice (i.e., gender inequalities) to other early childhood teacher education settings will rely on recognizing that debates are not magic formulas and that they may not impact all pre-service teachers in the same way. Therefore, as teacher educators we should not expect any pedagogical approach to work with simplicity and certainty by itself. In addition, although their experiences in teacher education programs shape their future practices in the school, the transition from pre-service teacher to in-service teacher is complex (Strom & Martin, 2022), and teacher education has limitations in this regard. Thus, it is risky to expect that mere participation in debates will inevitably transform education. Anyway, if I endeavour to foster a critical approach to teaching, spurring pre-service teachers to be more conscious about social justice, a further avenue to explore involves examining how, applying the insights gathered in this self-study, I continue navigating all the challenges I face in my process of learning to teach while teaching pre-service teachers about social justice and inequalities. Finally, bearing in mind the ideas derived from this article, teacher educators may consider using debates in their teaching practices as a way to strengthen their commitment to promote gender awareness and adopt a critical approach to teaching towards social justice. However, they would do well to incorporate additional pedagogical approaches to combine their benefits and work toward social transformation.

# ACKNOWLEDGMENTS

The author thanks all the participants who took part in this study.

# **DECLARATION OF INTEREST STATEMENT**

The author reports there are no competing interests to declare.

# REFERENCES

- Aguinis, H., & Solarino, A.M. (2019). Transparency and replicability in qualitative research: The case of interviews with elite informants. *Strategic Management Journal*, 40(8), 1291-1315. <u>https://doi.org/10.1002/smj.3015</u>
- Alén, E., Domínguez, T., & de Carlos, P. (2015). University students' perceptions of the use of academic debates as a teaching methodology. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 16, 15-21. <u>https://doi.org/10.1016/j.jhlste.2014.11.001</u>
- Andrews, G. (2020). Teaching gender and sexuality in the wake of the must fall movements: Mutual disruption through the lens of critical pedagogy. *Education as Change, 24*(1), 1-20. http://dx.doi.org/10.25159/1947-9417/7118
- Anjum, G., Chilton, A., & Usman, Z. (2021). United Nations endorsement and support for human rights: An experiment on women's rights in Pakistan. *Journal of Peace Research*, 58(3), 462-478. <u>https://doi.org/10.1177/0022343320912839</u>
- Beane, C. (2016). Resolved: Debate disrupts the school-to-prison pipeline 1. In K. Davis, L. Zorwick, J. Roland, & M. Wade (Eds.), Using debate in the classroom (pp. 22-35). Routledge.
- Braidotti, R. (2019). Posthuman knowledge. Cambridge Polity Press.
- Braun, B., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitativ* e Research in Psychology, 3(2), 77–101.
- Cridland-Hughes, S. (2016). Making words matter: Critical literacy, debate, and a pedagogy of dialogue. In K. Davis, L. Zorwick, J. Roland, & M. Wade (Eds.), *Using debate in the classroom* (pp. 48-59). Routledge.
- Creswell, J.W., & Poth, C.N. (2016). *Qualitative inquiry and research design: Choosing among five approaches.* Sage.
- Dewey, J. (1938). Experience and education. Macmillan.
- Domínguez, M. (2021). Cultivating epistemic disobedience: Exploring the possibilities of a decolonial practice-based teacher education. *Journal of Teacher Education*, 72(5), 551-563. <u>https://doi.org/10.1177/0022487120978152</u>
- Doody, O., & Condon, M. (2012). Increasing student involvement and learning through using debate as an assessment. *Nurse Education in Practice*, 12(4), 232-237.
- Doucette, B., Sanabria, A., Sheplak, A., & Aydin, H. (2021). The perceptions of culturally diverse graduate students on multicultural education: Implication for inclusion and diversity awareness in higher education. *European Journal of Educational Research*, 10(3), 1259-1273. <u>https://doi.org/10.12973/eu-jer.10.3.1259</u>
- Dunbar, K., & Yadav, A. (2022). Shifting to student-centered learning: Influences of teaching a summer service learning program. *Teaching and Teacher Education*, 110, 103578. <u>https://doi.org/10.1016/j.tate.2021.103578</u>
- Dziwa, D., Postma, L., & Combrink, L. (2022). Transcending gender dichotomy through art teacher education in Zimbabwe. *International Journal of Education Through Art, 18*(1), 33-49. <u>https://doi.org/10.1386/eta\_00081\_1</u>
- Ellingson, L.L & Sotirin, P. (2020). Data engagement: A critical materialist framework for making data in qualitative research. *Qualitative Inquiry*, *26*(7), 817-826. <u>https://doi.org/10.1177/1077800419846639</u>
- Flick, U. (2014). An Introduction to Qualitative Research (5th ed.). Sage.
- Fraser, M., Wotring, A., Green, C., & Eady, M. (2022). Designing a framework to improve critical reflection writing in teacher education using action research. *Educational Action Research*, 1-17. <u>https://doi.org/10.1080/09650792.2022.2038226</u>
- Freire, P. (2005). Teachers as cultural workers. Westview Press.

- Frost, S. (2011). The implications of the new materialisms for feminist epistemology. In H.E. Grasswick (Ed.), *Feminist epistemology and philosophy of science* (pp. 69-83). Springer.
- Gerdin, G., Philpot, R., & Smith, W. (2018). It is only an intervention, but it can sow very fertile seeds: Graduate physical education teachers' interpretations of critical pedagogy. *Sport, Education, and Society, 23*(3), 203–215. <u>https://doi.org/10.1080/13573322.2016.1174846</u>
- Giroux, H.A. (2018). Thinking about schools. Routledge.
- Grossman, P., Hammerness, K., & McDonald, M. (2009). Redefining teaching, reimagining teacher education. *Teachers and Teaching*, 15(2), 273–289. <u>https://doi.org/10.1080/13540600902875340</u>
- Grossman, P., Kazemi, E., Kavanagh, S.S., Franke, M., & Dutro, E. (2019). Learning to facilitate discussions: Collaborations in practice-based teacher education. *Teaching and Teacher Education*, 81, 97-99. <u>https://doi.org/10.1016/j.tate.2019.02.002</u>
- Jackson, A.Y., & Mazzei, L. (2012). *Thinking with theory in qualitative research: Viewing data across multiple perspectives*. Routledge
- Kavanagh, S.S., & Danielson, K.A. (2020). Practicing justice, justifying practice: Toward critical practice teacher education. *American Educational Research Journal*, 57(1), 69-105. <u>https://doi.org/10.3102/0002831219848691</u>
- Kitchen, J., Berry, A., Bullock, S., Crowe, A., Taylor, M., Guðjónsdóttir, H., & Thomas, L. (Eds.). (2020). International handbook of self-study of teaching and teacher education practices, Second edition. Springer.
- Kloser, M., Wilsey, M., Madkins, T., & Windschitl, M. (2019). Connecting the dots: Secondary science teacher candidates' uptake of the core practice of facilitating sensemaking discussions from teacher education experiences. *Teaching and teacher education*, 80, 115-27. <u>https://doi.org/10.1016/j.tate.2019.01.006</u>
- Knijnik, J., & Luguetti, C. (2021). Social justice narratives in academia: challenges, struggles and pleasures PETE educators face in understanding and enacting critical pedagogy in Brazil. *Sport, Education and Society, 26*(5), 541-553. <u>https://doi.org/10.1080/13573322.2020.1732905</u>
- Latour, B. (1993). We have never been modern. Cambridge.
- LaBoskey, V.K. (2004). The methodology of self-study and its theoretical
- underpinnings. In J.J. Loughran, M.L. Hamilton, V. LaBoskey, & T. Russell (Eds.), International handbook of self-study of teaching and teacher education practices (pp. 817–869). Springer.
- Loughran, J. (2004). A history and context of self-study of teaching and teacher education practices. In J. Loughran, M. Hamilton, V. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 7–39). Springer.
- Loughran, J., & Russell, T. (Eds.). (2002). *Improving teacher education practice through self- study*. Routledge.
- Maldonado, M., Bascuñán, D., & Martin, A. (2020). Potential benefits of debates: Perceptions of EFL pre-service teachers. *Lenguas modernas*, (55), 133-150.
- Marin, K. (2014). Becoming a teacher educator: A self-study of the use of inquiry in a mathematics methods course. *Studying Teacher Education*, 10(1), 20-35. https://doi.org/10.1080/17425964.2013.873976
- Martin, A. (2020). Tensions and caring in teacher education: A self-study on teaching in difficult moments. *Studying Teacher Education*, 16(3), 306-323. <u>https://doi.org/10.1080/17425964.2020.1783527</u>

- McCarthy, M. (2018). Critically teaching criticality?: Modeling social and pedagogical inquiry with literary texts. *Studying Teacher Education*, 14(2), 174-193. https://doi.org/10.1080/17425964.2018.1449103
- Mérida, R., González, E., & Olivares, M. (2017). Strategies and modalities of oral argument in the early childhood education assemblies. *Revista Complutense Educación*, 28(2), 445-462.
- Miles, M., Huberman, M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook.* Sage.
- Mojica, C., & Castañeda, H. (2021). Helping English language teachers become gender aware. *ELT Journal*, 75(2), 203-212. <u>https://doi.org/10.1093/elt/ccaa076</u>
- Namatende, L. (2021). Are progressive texts necessarily disruptive? Investigating teacher engagement with gendered textbooks in Ugandan classrooms. *Teachers College Record*, 123(1), 1-26. <u>https://doi.org/10.1177/016146812112300105</u>
- North, C. (2008). What is all this talk about. Teachers College Record, 110, 1182-1206.
- Pastor-Gosálbez, I., Belzunegui-Eraso, A., Merino, M., & Merino, P. (2021). Analysing gender-based violence in Spain fifteen years after the implementation of law 1/2004. Revista Española Investigaciones Sociológicas, 174, 109-127. <u>https://doi.org/10.5477/cis/reis.174.109</u>
- Sánchez, G. (2006). *El debate académico en el aula como herramienta didáctica y evaluativa*. ICADE Universidad Pontificia Comillas, Departamento de Gestión Empresarial.
- Schwarz-Franco, O., & Ergas, O. (2021). What is the (real) agenda of a critical pedagogue? Self-studying the application of Freire in moral-political highschool education. *Studying Teacher Education*, 17(3), 292-310. <u>https://doi.org/10.1080/17425964.2021.1959311</u>
- Savitz, R.S., Cridland-Hughes, S., & Gazioglu, M. (2021). Debate as a tool to develop disciplinary practices and student agency. *Teaching and Teacher Education*, 102, 103341. <u>https://doi.org/10.1016/j.tate.2021.103341</u>
- Shor, I. (1993). Education is politics Paulo Freire's critical pedagogy. In P. McLaren, & P. Leonard (Eds.), *Paulo Freire: A critical encounter* (pp. 24-35). Routledge.
- Spaska, A., Savishchenko, V., Komar, O., & Maidanyk, O. (2021). Enhancing Analytical thinking in tertiary students using debates. *European Journal of Educational Research*, 10(2), 879-889. <u>https://doi.org/10.12973/eu-jer.10.2.879</u>
- Spear, A.M., & da Costa, R.B. (2018). Potential for transformation? Two teacher training programs examined through a critical pedagogy framework. *Teaching* and Teacher Education, 69, 202-209. <u>https://doi.org/10.1016/j.tate.2017.10.013</u>
- Strom, K., Martin, A., & Villegas, A. (2018). Clinging to the edge of chaos: The emergence of practice in the first year of teaching. *Teachers College Record*, *120*(7), 1-32. <u>https://doi.org/10.1177/016146811812000701</u>
- Strom, K., Mills, T., & Abrams, L. (2021). Illuminating a continuum of complex perspectives in teacher development. *Professional Development in Education*, 47(2-3), 199-208. <u>https://doi.org/10.1080/19415257.2021.1901005</u>
- Strom, K., & Martin, A. (2022). Toward a critical posthuman understanding of teacher development and practice: A multi-case study of beginning teachers. *Teaching* and teacher education, 103688. <u>https://doi.org/10.1016/j.tate.2022.103688</u>
- Thacker, E., Lee, J., & Friedman, A. (2017). Teaching with the C3 framework: Surveying teachers' beliefs and practices. *The Journal of Social Studies Research*, 41(2), 89-100. <u>https://doi.org/10.1016/j.jssr.2016.08.001</u>
- Vasquez, V., Janks, H., & Comber, B. (2019). Critical literacy as a way of being and doing. *Language Arts*, 96(5), 300-311.

Warren, J.L. (2012). Does service-learning increase student learning?: A meta-analysis. *Michigan journal of community service learning, 18*(2), 56-61.

Wood, B., Taylor, R., Atkins, R., & Johnston, M. (2018). Pedagogies for active citizenship: Learning through affective and cognitive domains for deeper democratic engagement. *Teaching and Teacher Education*, 75, 259-267. <u>https://doi.org/10.1016/j.tate.2018.07.007</u>

#### Tables

Table 1. Grid with the procedure for Debate 1.

| Step       | Team 1                                      | Team 2      | Team 3      |
|------------|---|-------------|-------------|
| Initial    | To summarize the text                       |             |             |
| statement  |   |             |             |
| Refutation | To formulate questions:                     |             |             |
|            | 1. Does the androcentric paradigm still     | Yes         | No          |
|            | dominate?                                   |             |             |
|            | 2. How can pedagogical resources be used to | Free answer | Free answer |
|            | overcome this paradigm?                     |             |             |
| Conclusion | To summarize conclusions                    |             |             |

Figures

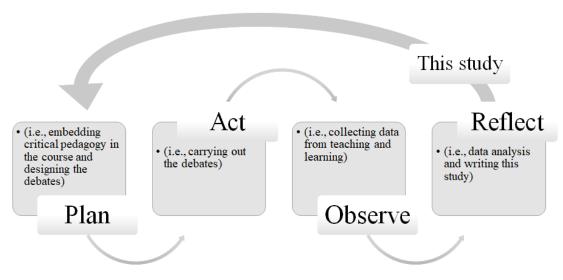


Figure 1. Sequence followed in this self-study.

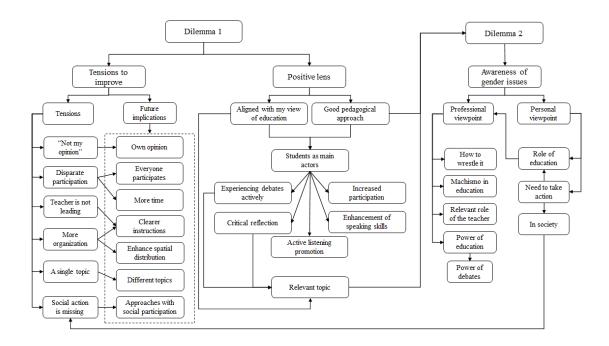


Figure 2. Visual network displaying the findings.