Anthropocentrism and ethics of care in environmental ethics based on gender variable

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Abstract

Purpose – This article aims to analyze the anthropocentrism vs ethics of care positions of a group of undergraduate students at a private university in Mexico to test gender variable differences in their perspectives. There are two hypotheses: (1) there is a statistically significant difference between male and female genders related to anthropocentrism vs ethics of care positions, and if so, (2) the differences are attributable to women having a more ethics of care position than men. Participants were 561 undergraduate students from a private university in Mexico (257 female, 304 male). The findings demonstrated that both hypotheses were supported by the ethics of care, where the individual rights perspective is set aside to seek collective and holistic well-being.

Design/methodology/approach – T-tests were performed to test gender differences in anthropocentrism and ethics of care.

Findings – The results showed statistical differences based on gender (sig.000) and that women are less anthropocentric (or more oriented toward an ethics of care than men (female:1.64 and male:1.94). Ethics of care of female position is more defined than that of men. As a conclusion, men are more oriented to anthropocentrism, which reflects a lack of environmental connection by not assuming themselves as part of it and by defending the right of resources exploitation. On the contrary, women tend to respond from an ethic of care that means a more harmonious relationship with nature. In addition, women tend to assume a relationship with the environment, without hierarchy or supremacy towards it, and tend to reject the demand for the exploitation of the planet’s resources as part of a right that human beings have historically assumed.

Research limitations/implications – One of the limitations of this study is that it has been carried out in a university educational context with exclusively undergraduate students. It would be interesting to validate these anthropocentric vs ethics of care positions in different university groups, including professors and academic managers. Studying this concept in diverse contexts such as business, government and civil society would also be engaging. In addition, the authors recognize that the study is limited by its small population, which means that a balance between men and women or disciplines could not be guaranteed. However, the authors believe that although the results may not be considered exhaustive or conclusive, the results shed light for possible new studies in which the population is expanded. This is an exploratory study.

Practical implications – These results have practical implications for universities. In the classroom and in the university environment, students can learn to question the way they relate to the environment. Anthropocentrism (more accentuated in men) is assumed to be separate from the environment and with the right to its exploitation. Contrary to anthropocentrism, it is necessary to explore other positions such as the ethics of care or feminine ethics, more pronounced in women. Universities can develop environmental sustainability projects under the leadership of women, without claiming to be exclusive to them. In this way, the ethic of care approach can be put into practice and thus begin the necessary change for a new environmental relationship perspective.

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Universities are required to provide an educational orientation towards Sustainable Development Goal (SDG) particularly those that respond to the climate crisis. To this end, it is necessary to promote a new environmental awareness that critically question anthropocentric models based on the supremacy over the environment. The ethics of care or feminine ethics, contrary to the previous position, assumes that the person is part of the environment and is oriented to its care and healing of the damage caused to restore this network of the human being with nature. The originality of this study lies in demonstrating how women exhibit a different relationship with the environment, oriented to the ethics of care, and how their posture shows a difference with anthropocentrism, which is stronger in men.

Keywords Higher education, Educational innovation, Future of education, Sustainable development, Complex environments, SDG, Anthropocentrism

Introduction
SDG number 13 deals with climate action to strengthen resilience and adaptive capacity to address global climate-related risks and natural disasters. It also seeks to improve education, awareness and human and institutional capacities to mitigate, adapt and reduce detrimental climate changes (United Nations, 2022). Therefore, to achieve meaningful actions related to climate change, it is necessary to change human beings’ paradigm of anthropocentrism.

Before approaching anthropocentrism as a function of the gender variable empirically, it is necessary to clarify the meaning of this concept and others, such as posthumanism, which precisely questions modernity and its desire to dominate and control reality, and specifically that of post-anthropocentrism, as an evolutionary step that must overcome the current anthropocentrism.

Anthropocentrism is a philosophical conception of the human being as the center of all things and the absolute end of creation. According to Rose (2008), post-anthropocentrism was defined by the emergence of the politics of life. Braidotti (2015) stated that man is the representative of a hierarchical and hegemonic species whose center has been brought to a discussion, derived from the combination of scientific advances and the interests of the global economy, usually known as capitalism. Navarro (2020) proposed that the humanities offered in educational centers such as universities and research institutions should begin with a critical reflection on traditional or anthropocentric ethics. In his contention, humanities should consider educational models that generate responsibility, sensitivity and commitment to the protection of the environment and its diversity.

Keeling and Lehman (2022) defined posthumanism as a philosophical perspective on how change is made in the world. A humanist perspective assumes that human beings are autonomous, conscious, intentional and exceptional in acts of change. A post-humanist perspective assumes that agency is distributed through dynamic forces that humans participate in but do not intend or have complete control over (Keeling and Lehman, 2022).

Therefore, they defined the human being as someone without control over what they traditionally did, as historically reflected in the humanist position. However, they also added that post-humanist scholarship has little consensus about how much a conscious human being can actively create change; they ultimately participate in change. They also pointed out that humanist assumptions are infused throughout Western philosophy reinforced a nature/culture dualism where human culture is distinct from nature. A post-humanist scholar, therefore, reject these dichotomy, since it considers human being as entangled with its environment (Keeling and Lehman, 2022). The human being cannot be polarized into one way of being or thinking. He/She is a multiply composed being, unfolding in an equally diverse environment.

Concerning posthumanism, Snaza and Weaver (2015) pointed out that it redefines the meaning of being human. There is an inevitable interdependence of humans, animals and machines. This relationship may challenge some of the most fundamental concepts in
educational theory and have implications for educational research, curriculum design and pedagogical interactions. From their perspective, posthumanism is a comprehensive theoretical project with connections to philosophy, animal studies, environmentalism, feminism, biology, queer theory and cognition. It offers a holistic and appropriate framework for studying human beings and their relationships with their surroundings. Finally, Snaza and Weaver (2015) mentioned that both researchers and scholars in curricular studies and philosophy of education will be able to benefit from the new research agendas presented by posthumanism.

Studying anthropocentrism from a gender perspective is necessary to understand why women (without claiming that it is exclusive to them) show a different voice when reasoning about their decisions. Traditional ethics proclaims individual’s rights as the fundamental axis of decisions. Instead, ethic of care attends to the needs of the other, having priority to attend to their call, above the defense of their own rights.

This is precisely the objective of this article, to analyze the anthropocentric vs ethics of care positions of a group of undergraduate students in a private university in Mexico, depending on gender variable. Two hypotheses were proposed. The first one affirmed there is a difference between male and female genders concerning their anthropocentric positions. The second one defends that women have a more anti-anthropocentric position than men, which it means they are more oriented to an ethics of care (Gilligan, 1982). This hypothesis was supported on ethics of care, where the perspective of individual rights is set aside to seek collective and holistic wellbeing. A position contrary to anthropocentrism, characterized by a separation of the human being with the environment, and with the right to exploit it, is found in the ethics of care. This second position argues that people are linked to the environment, not separate or above it. Therefore, it is necessary to establish a harmonious relationship with the environment focused on care and healing of the damage that humans have caused in it.

**Literature review**

Maurer and Bogner (2020) reported that the term “environment” was perceived as the sum of biocentric, ecocentric and anthropocentric views, where human beings were perceived as the most significant environmental threat. Universities are currently the centers where a new awareness of human beings and their relationship with nature is developed. Particularly in the student body academic efforts are being made to measure ethical conceptions, paradigms and environmental decision-making. Concerning the ethics of care, it is interesting to see how the concepts of self-care, care for others, and care for the environment are beginning to emerge in university academic research.

Gilligan (1982) defended the assumption that there is an ethics of care (not exclusive to women) which is oriented to the care and protection of others. It is an ethic that is not centered on logical principles and duties focused on the individual rights but attends to the care of the other, without balance and measure. For Ethics of Care is essential to maintain the wellbeing of the group, by taking care of its relationship and dependency on the environment, above individual rights. In this respect, ethics of care (Gilligan, 1982) referred the importance of maintaining strong ties with others and the responsibilities involved in caring for others above the abstract fulfillment of duties and the exercise of the rights of the individual as primacy. In this sense, Gilligan (1982) questioned how human beings lose care, empathy and sensitivity about emotional situation. A new female voice was identified that combines reason and emotion. In the environmental field, the ethics of care raises the possibility of taking charge of the environment and caring for it above the rights of exploitation and extraction of natural resources. In this regard, ethics of care questions the anthropocentrism that has placed the individual’s rights above the welfare of others or the environment.

About the origins of this theory, Faerman (2015) mentioned that Gilligan (1982) developed the ethics of care starting from a theory of moral reasoning studied by Lawrence Kohlberg in
the 1980s. The conclusion establish that females could only reach the intermediate stages of this model and not attain the supposed full moral development. Gilligan (1982) contradicts these conclusions and argues that women do not have an inferior moral reasoning than men, but that their way of reasoning follows different stages than that of men.

The ethics of care is a reference for questioning the current problems facing humanity. In this sense, Bozalek (2016) argued that what makes ethics of care so contemporary is its relationship to posthumanism and new materialist feminist approaches to ethics. Related to that, Trafi-Prats (2020) stated that post-humanist and ethics of care are contrary to the individualization and normativization of care. Focused on social issues, Snaza and Weaver (2015) defined that post-humanist education turns out to be a continuation of the radical, democratic and even utopian projects of the 20th century, not driven by exploitation, dehumanization, or violence.

In the participation of universities, the educational foundations of the way in which human beings relate to the environment are beginning to be questioned in order to explore new approaches, such as the ethics of care. Prinsloo and Slade (2017) started from the premise of viewing higher education as a moral and political practice and, thus, set out to formulate a framework for information justice based on an ethics of justice and care. They argued that the inherent tensions between an ethic of justice and an ethic of care enable and require critical engagement in higher education. Continuing with this position, Buchanan et al. (2021) argued a complex web of ethical obligations within education, including preparing students for their future work and the responsibility to be ethical educators and consider ethical obligations to the Earth. The ethics of care is also beginning to be linked to other areas of university education, such as leadership styles. Related to this, Nicholson and Kurucz (2019) emphasized how the moral theory of the “ethics of care” can help to shed light on ethical dimensions of relational leadership for sustainability.

From the ethics of care perspective, a relational stance can be fostered by engaging in a reflective process of moral education through conversation. Moreover, Maio (2018) explored ethics of care in the field of bioethics as a response to the lack of context and the rationalist approach of principalism. The starting point for the formulation of this ethics emerged from Gilligan’s book *In a Different Voice*, where she defined care as a specifically feminine virtue. Thus, the ethics of care has been studied from its relationship with feminist ethics and feminine morality. Likewise, ethics of care focuses on fundamental dependence rather than individual sovereignty, which means recognizing that everyone lives within a structure of dependence, whether or not they are aware of this dependence (Maio, 2018).

Also, ethics of care is related to post-humanist education, where the problems and relationships of necessary interdependence between the human being and the rest of the creatures are studied. Moreover, it is an ethical theory for understanding the world as a network of relationships in which there is recognition of responsibility towards others (Alvarado, 2004). For Busquets (2019), ethics of care is critical to finding answers to questions and ethical dilemmas of today’s society. About the challenge of analyzing current problems, Corral-Verdugo et al. (2021) suggested that sustainability, understood as a chain of interdependencies among the individual, society and nature, begins with self-care and continues with the care of others and that of the biosphere, which will enable a more sustainable environment.

**Related previous studies**

The following section shares references that partly represent the state of the art in relation to the central focus of the article. For example, the study conducted by Rodenburg and Macdonald (2021), proposed the identification of influential factors that would be key to ethical orientation and attitudes towards the environment for curricular planning designed to
develop both ethical decision making and environmental sensitivity of students in business schools. The results showed that in addition to sociocultural variables, situational factors also influence ethical decision making. Furthermore, they showed that ethical orientations as measured by the EOS (Ethical Orientation Scale) can predict beliefs about the environment as measured by the NEP (New Ecological Paradigm) scale. The EOS, in this case, identified subjects as more idealistic/deontological or more realistic/teleological based on their responses; this helped business educators identify high-impact teaching strategies that could enhance skills in resolving ethical dilemmas and sustainable business practices that protect the environment.

For their part, Sánchez-Domínguez et al. (2021) reported that the New Ecological Paradigm Scale-Revised (NEP-R), translated into Spanish, is an instrument widely used in several countries and cultures to measure people’s environmental beliefs. The internal consistency (Cronbach’s α) of the NEP-R scale was analyzed and an exploratory factor analysis (EFA) with varimax rotation was performed. The finding revealed an optimal internal consistency coefficient (α = 0.702) and they found a 2-factor structure: ecocentrism, (which could be related to environmental care ethics) vs anthropocentrism). The psychometric properties of this scale were consistent and that no radical changes are required for its use. However, it is necessary to evaluate the scale’s dimensionality, reliability and validity for different type of population.

Maurer and Bogner (2020), in relation to sustainable concepts, it is held that natural resources were often named exceeding water and energy saving; such ideas, they point out, are shaped by scientific experiences and knowledge. Therefore, it is concluded that future studies on ESD objectives may need to focus on qualitative and quantitative conceptions, as well as the improvement of educational interaction in general.

Specifically regarding the ethics of care, this has been empirically analyzed in topics such as food autonomy and its influence on the care of the land and others, through permaculture (Giraud, 2021). While this study presents relevant information, it does not discuss how the ethic of care impacts permaculture, making gender distinctions. The ethic of care has also been empirically analyzed in the process of diversifying food production options through gardens and how this practice fosters reciprocity and exchange networks and additional benefits for other species (Sovová et al., 2021). The linking of the ethic of care and sustainability through garden projects and the development of these social skills is interesting, but the gender implications of such practices, issues sought to be analyzed in this study, are also not discussed.

The article discussed here, while not addressing specific applications of the ethics of care and sustainability, such as permaculture and gardens, does seek to generate findings on the ethics of care as a function of gender in the field of sustainability. Understanding that such differences exist will allow making adjustments in practical applications, without assuming that everything works the same for men and women. In addition, providing input on the ethics of care and gender in relation to sustainability will make it possible to find the reasons when sustainability practices do not work, and how to try to do it better, since gender can have an important influence on this.

In education, the ethics of care and sustainability has also been addressed in different areas, such as early childhood education and university. For example, Raivio et al. (2022), based on feminist and postcolonial ethics of care, connect social sustainability, care and worldview in early education, in a plural context. Based on the above, they build the foundations for understanding, researching and planning socially sustainable communities of care. Additionally, Vázquez-Verdera and Escámez-Sánchez (2022) analyzed new university perspectives towards sustainability and conclude that the university can find in the ethics of care catalytic elements to nurture the transition towards sustainability. They conclude at a theoretical level how the ethics of care deals with a relational perspective and connections to
overcome the dominant patriarchal imposition and address the lack of relationships, as well as giving voice to the silenced.

In addition to the theoretical underpinnings of the ethics of care and its linkage to sustainability, this study seeks to shed light with an empirical basis by questioning the dominant patriarchal paradigm as the lack of the holistic relationship with the environment as a function of gender. Thanks to the contributions of this study, universities and educational centers can find a justification for integrating the ethics of care and sustainability, addressing gender differences.

Post-humanistic Challenges in the field of Higher Education towards sustainability

Criticism of the lack of sustainability of current educational models, many of them centered on anthropocentrism, has been debated in the academic literature. An example of such criticisms can be found in the following articles.

For instance, Salite et al. (2021) pointed out that the root of the problems about the emergence of the Anthropocene is based on unsustainability limiting the possibility of a sustainable development. On their contention, the main problem is the impact on people and the unsustainability of education. In a similar way, Hourdequin (2021) referred how Western canonical philosophy overlooked essential questions about human relationships with nonhuman animals and the planet. Environmental ethics emerged as a critical response to attend the deficiency of the Western tradition. In this regard, power dynamics, domination and oppression are considered as part of environmental and ecological justice issues. Related to that, Ergene et al. (2021) criticized the hegemony of corporate thinking. On their contention, it is absurd to continue prioritizing financial results when decisions are threatening the planet. It is required to move beyond market-based interests and anthropocentric concerns. In this regard, Kopnina (2020b) questioned whether Education for Sustainable Development (ESD) is desirable as an education for the future, suggesting an alternative education in order to emphasize planetary ethics and degrowth. Alternatives include indigenous learning, eco-pedagogy, ecocentric education, education for the circular and steady-state economy, empowerment and liberation. Finally, Kopnina (2020b) argued that education for sustainable development and education for Sustainable Development Goals (SDGs) propagated by UNESCO exhibit some worrying trends and contradictions. In this respect, Logan and Khatun (2019) recognized the imbalance of power between human groups and the other inhabitants of the planet, issues that, again, are denounced by both gender theory and posthumanism. Related to that, Allen et al. (2019) contributed to the debate about sustainability by proposing the need for an ecocentric stance towards sustainability that reflexively embeds humans in nature rather than detaching from it. The notion of ecocentrism is thus developed based on insights from socio-materiality studies. It was shown how radical reflexivity allows us to appreciate our rootedness and responsibility for sustainability by drawing attention to the interrelationship of values, actions and our social and material world. The implications of a radically reflexive ecocentric approach to sustainability for management education were also examined.

Regarding concerns about species extinction and their preservation, there are academic contributions related to these issues. Ruck and Mannion (2021) provide an ethnographic view of the more-than-human relationships enacted through youth participation in conservation activities on school grounds. Conservation activities enable ways of thinking about the more-than-human world that transcend any stewardship perspective. In this regard, Brossard-Borhaug (2021) argued that anthropogenic climate change threatens biocultural diversity, leading to linguistic and species extinction, and discusses cultural and biological diversity preservation.

There are different post-humanistic approach in Higher Education in order to change for a new ecocentric and sustainable paradigm. In this respect, Ferrer-Estévez and Chalmeta (2021) proposed to develop a framework to guide academic institutions towards achieving the SDGs...
and promoting sustainable development. It is required a post-humanist education accompanied by ethics of care. In a similar way, Stickney and Skilbeck (2020) reviewed the background literature on transformative environmental education and discussed effectiveness issues in the most effective eco-pedagogies. It concluded the need for foresight in educational planning and policy, as in government in general, to address climate change. This fact reinforces the need to include posthumanism and the ethics of care to give a perspective on the importance of the necessary “others” to the human being.

Another example of university educative efforts for sustainability was shared by Kopnina (2020a), who combined in a course different topics: social, environmental, ecological justice in education for sustainable development (ESD) and Education for Sustainable Development Goals (ESDG). Related to that efforts, González-Zamar et al. (2020) argued that using information and communication technologies (ICT) benefits the environmental and sustainable education, contributing to forming more responsible and conscious students. Developing ethics of care requires to work on emotions and no only focus on rational competences. Focused in emotions and education, Tillmanns (2020) argued that working with emotions clarify values required to transform worldviews and behavior and sustainability in a critical way. It was concluded that disruptive learning might inspire educators to develop other pedagogical strategies, processes and techniques to stimulate emotional reaction focused in sustainability education.

New educational models that consider ethics of care are required. In this perspective, Galán (2019) aimed at laying the foundations of an innovative, social and educational model to transform environmental education into an environmentally oriented values education and promote awareness and sensitization of citizens in the face of severe social and ecological problems. A diversity of educational trends coexist without a single environmental ethic, which requires adopting a new global perspective to address new challenges.

In the academic literature, in addition to proposals for new, more sustainable educational models, there have also been empirical approaches to validate such changes. For instance, Liobikiene and Poškus (2019) argued that promoting pro-environmental behavior is required for solving environmental problems, their findings showed how developing environmental knowledge influenced pro-environmental behavior.

In summary, the above studies have been useful for analyzing various points of the subject being addressed: (1) To understand the criticism of anthropocentrism, which places human beings above the environment and with the right to exploit resources, without taking into account the negative effects on other life systems. This is particularly relevant in view of the climate crisis. (2) To establish the need to review the traditional university educational systems and the need to focus them on ethics of care for sustainability. (3) To analyze for new educational models the possibility of the ethics of care as a response contrary to anthropocentrism. Ethics of care postulates the relevance of a harmonious relationship with the environment and a focus on its preservation, protection and healing of the damage caused. (4) To discuss the challenges of higher education towards sustainability and the need for a paradigm shift.

The gap found in the literature is that even though the ethics of care is considered as a philosophical sustainable approach for new educational models, there are no studies that analyze anthropocentrism and the ethics of care from a gender perspective, which is the main contribution of this article. This may be an opportunity for women to demonstrate new ways in which humans relate to the environment.

Methods
This article aims to analyze anthropocentric vs ethics of care positions of a group of students in a private university located in northeastern Mexico to test whether there are differences according to the gender variable.
The hypotheses subjected to statistical tests were:

(1) There is a significant difference between female and male genders about their anthropocentric positions.

(2) Women has a less anthropocentric position (related to ethics of care) than men.

The measurement instrument was adapted from the New Ecological Paradigm Scale (NEP-s) proposed and validated by Dunlap et al. (2000). One of the dimensions included in the instrument was anti-anthropocentrism. This dimension sought to identify whether the person assumed themself as part of the totality of life on the planet, contrary to anthropocentric positions, where the human being is considered the center of everything.

The Likert scale had values ranging from 1 to 5: 1: Strongly agree 2: Moderately agree 3: Neither agree nor disagree 4: Moderately disagree 5: Strongly disagree.

The number of items included in this dimension in its Spanish adaptation was four:

(1) Human beings have the right to modify the natural environment to adapt it to their needs (inverted).

(2) It is the destiny of human beings to govern the rest of nature (inverted).

(3) Plants and animals have as much right as humans to exist.

(4) Humans are only a part of the web of life, not separate from it.

A previous version of NEPS in Spanish, reported an internal consistency coefficient of $\alpha = 0.702$ (Sánchez-Domínguez et al. (2021). For analysis purposes, items 1 and 2 were reversed since these first two items, unlike 3 and 4, were oriented to defending anthropocentrism. For statistical analysis purposes, an answer tending to 1 showed a perspective based on ethics of care, and an answer tending to 5 showed an anthropocentric position.

The methodology focused on three parts:

(1) Division according to two groups: feminine and masculine, to validate the anthropocentric paradigm vs ethics of care, according to gender.

(2) Performance of Levene’s statistical test to verify the equality of variances.

(3) Execution of the $T$-test to validate the difference in means between the two groups by gender concerning anthropocentrism vs ethics of care.

### Student sample

Sample process was applied using quota sampling method for university students who are part of a challenge-oriented educational model. Three population variables were considered for the sample process: gender, major studies and region.

The invitation to answer the questionnaire was sent by e-mail to each student and the form in which they answered the questionnaire was on an electronic page. The page explained the objective and guaranteed the anonymity of the students so as not to bias their answers. The site automatically verified that no answer was left unanswered before submission.

The researchers had no influence on the responses since no contact was maintained with the student.

Table 1 presents descriptive statistics by gender (female/male), such as mean, standard deviation, and standard error of the mean. The proportional difference between male and female university students corresponds to the university’s population difference.

Table 2 shows that the students participating in the study were at undergraduate level. The engineering area had the highest representation, followed by business. Most of the
responses corresponded to the northeastern geographical area (Laguna, Monterrey and Saltillo), followed mainly by central Mexico (Cuernavaca, Hidalgo, Puebla, Queretaro, San Luis Potosi, Tampico and Toluca).

Finally, most of the students do not have work experience, do not participate in any NGO related to the environment and have not done community service in environmental areas. It is important to mention that the university population varies in the different undergraduate majors. The engineering area is the most populated and the health area is the smallest. On the other hand, the distribution by regions does not affect the study since culturally the students are similar and there are no relevant differences between them in the cultural aspect.

**Analysis and discussion of results**

Table 3 below shows the test of equality of variances in which different variances were assumed according to the gender variable. Subsequently, the student $T$-test was used to

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Gender</th>
<th>$N$</th>
<th>Mean</th>
<th>Std dev</th>
<th>Std error mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAN: Anti-antropocentrism</td>
<td>Female</td>
<td>257</td>
<td>1.6498</td>
<td>0.55939</td>
<td>0.03489</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>304</td>
<td>1.9474</td>
<td>0.62049</td>
<td>0.03559</td>
</tr>
</tbody>
</table>

**Source(s):** Own creation

<table>
<thead>
<tr>
<th>Educational level</th>
<th>Major</th>
<th>Geographic region(***)</th>
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</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>561</td>
<td>Engineering</td>
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<tr>
<td></td>
<td></td>
<td>Business</td>
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<td></td>
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<td>Health</td>
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<tr>
<td>Total</td>
<td>561</td>
<td>264</td>
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<td>Center</td>
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<td>19</td>
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<td></td>
<td></td>
<td>561</td>
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</tbody>
</table>

**Note(s):** ***Region Campus  
(1) Center Region (Campus: Cuernavaca, Hidalgo, Puebla, Querétaro, San Luis Potosi, Tampico, Toluca)  
(2) Monterrey Region (Campus: Laguna, Monterrey, Saltillo)  
(3) Mexico City Region (Campus: Cd. de México, Estado de México, Santa Fe)  
(4) West Region (Campus: Aguascalientes, Chihuahua, Guadalajara, León, Morelia, Sinaloa, Sonora Norte)  
**Source(s):** Own creation

**Table 3.**  
Levene’s test for equality of variances and student’s difference of means, student $T$-test for independent samples (Anti-antropocentrism by Gender)

<table>
<thead>
<tr>
<th></th>
<th>$F$</th>
<th>Sig</th>
<th>$t$-test for equality of means</th>
<th>Sig. (2-tailed)</th>
<th>Mean difference</th>
<th>Std. Error difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAN: Anti-antropocentrism</td>
<td>Equal variances assumed</td>
<td>5.485</td>
<td>0.020</td>
<td>$-5.919$</td>
<td>559.00</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>$-5.970$</td>
<td>0.000</td>
<td>556.68</td>
<td>0.000</td>
<td>$-0.298$</td>
</tr>
</tbody>
</table>

**Source(s):** Own creation
determine whether there were statistically significant differences between the two groups (female/male).

Likewise, it was shown that there were statistically significant differences according to the gender variable when studying anthropocentrism. With this test, Hypothesis 1 was validated (sig. 0.000) and, based on the observation of the means (female: 1.64 and male: 1.94), Hypothesis 2 was also validated. These findings confirmed that women are more oriented to ethics of care than men (sig. 0.000), since men present a more anthropocentric perspective.

It is relevant to clarify that for verification purposes, $T$-tests were performed to verify that the region or major studies did not influence the anthropocentric position of the university student. The findings report that both variables are not significant to define an anthropocentric or ethics of care perspective (Region: sig. 0.164 and Major studies: sig. 0.387). The only variable that did show significance was gender. Ethic of care counteracts anthropocentrism and this is expressed in a more relevant way in the women under study. In this sense, gender variable influences both positions: anthropocentric (male) and ethics of care (female).

The analyzed results indicate that women show a stronger ethic of care, which has been linked more to women because of their interest in others and each other to maintain the collective welfare of the community (Gilligan, 1982).

Based on results, new proposal that could lead to encourage women to have a greater relationship with sustainability projects are required. Their voice will provide a new perspective to explore sustainable educational models. Undoubtedly, both men and women should be added to this paradigm shift focused on sustainability, from the ethics of care. This change requires questioning the patriarchal, hierarchical and dominant position in which the human being assumes the right to dominate and exploit nature by separating from it.

Conclusions

From the findings it is concluded that in the university environment, gender is a variable that determines the way in which humans relate to the environment. This study showed how men are based on anthropocentrism, which reflects a lack of environmental connection by not assuming themselves as part of it. Women tend to respond from an ethic of care that means a more harmonious relationship with nature, dedication to the preservation and care of the damage already generated to the planet. The findings will make it possible to consider ethic of care as an educational reference, if the aim is to train new generations towards sustainability. Particularly for women, it can be an opportunity for universities to open up new educational trends based on ethics of care (projects, programs, courses). Through the above, students can show a different way of relating to the environment, where both men and women can explore and learn.

Implications

These results have implications for universities because, in these spaces, students need to learn to question human beings and their relationship with the environment and ask themselves provocative questions that trigger imagination and creativity to rethink new ways of life. This also implies questioning current economy-centered interests based on production, consumption and the exploitation of resources, thus refuting the criteria imposed by the market. It is necessary to recognize that these rules come from an anthropocentric perspective, which must be overcome for sustainability.

Impact and relevance of the study

Universities are required to provide an educational orientation towards SDG particularly those that respond to the climate crisis. To this end, it is necessary to promote a new environmental awareness that critically questions anthropocentric models based on the
supremacy over the environment. The ethics of care or feminine ethics, contrary to the previous position, assumes that the person is part of the environment and is oriented to its care and healing of the damage caused to restore this network of the human being with nature. The originality of this study lies in demonstrating how women exhibit a different relationship with the environment, oriented to the ethics of care, and how their posture shows a difference with anthropocentrism, which is stronger in men.

**Limitations**

One of the limitations of this study is that it has been carried out in a university educational context with exclusively undergraduate students. It would be interesting to validate these anthropocentric positions in different university groups, including professors and academic managers. Studying this concept in diverse contexts such as business, government, and civil society would also be engaging. In addition, we recognize that the study is limited by its small population, which means that a balance between men and women or disciplines could not be guaranteed. However, we believe that although the results may not be considered exhaustive or conclusive, they shed light for possible new studies in which the population is expanded. This is an exploratory study.

**References**


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