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Sexuality, sustainability and teacher education: theoretical “anchors” as a contribution to sexuality education

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Abstract: This article articulates sexuality/sustainability/education through the following research question: what is the potential of Sexuality Education (SE) for research and for the (school and non-school) curriculum in light of the assumptions of the 2030 Agenda, the challenges for sustainability, and the new 2024 Resolution of the National Curricular Guidelines (NCG) for teacher education in Brazil? The object of investigation presented here gains relevance when considering the role of gender and sexuality studies with regard to environmental issues and teacher education. Through the application of the Theoretical Framework Method, the research results were developed in the form of three theoretical “anchors” “in” and “for” SE. It is concluded that SE is strengthened as a field of research and as both school and non-school curriculum in relation to global sustainability and the current NCG for teacher education programs in Brazil, which now require: the continuous strengthening of research at the interfaces of sexuality/sustainability/education; cultural changes in university governance, from management to teacher education; and, within teacher education programs, an innovative approach to the preparation of sexuality educators.

Keywords: gender; environmental issues; teaching profession.

1 Introduction

The term “Anchors” (baliza), as understood here according to standard Portuguese dictionary definitions, denotes both a marker indicating passage and a guiding reference point. In its plural form Anchors, is conceptualized in the present article as theoretical foundations that functions as indicators or guiding signposts with methodological implications for the field of Sexual Education (SE): specifically, it refers to a transition unbounded by traditional restraints towards new modus of research, university training curriculum and teaching practices, while simultaneously signaling orientations, trends and perspectives.

The theoretical Anchors underpinning this article are conceptualized as epistemologies orientation within SE. Educational epistemologies, in general, tend to



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be undervalued in teaching practice, as well as in teacher education. This shortcoming may lie with educators working in higher education institutions; however, it may also reflect broader cultural faros, particularly in Brazil, such as, for instance, the comparatively low reading rates among the Brazilian population.

It is imperative, however, that epistemology constitute a foundational component of teacher education. As argued by Cachapuz *et al.* (2005, p. 73)

[...] epistemology helps teachers to improve their own conceptions of science and the foundations of their pedagogical didactic practice. It involves questioning, discussing, and reflecting on the relevance of connections between science/epistemology/education in science.

Epistemologies and theories in SE are grounded in important theoretical foundation, extending into contemporary scholarship, in the works of Verando (1989) and Figueiró (1995, p. 1996). Particularly in the works of Mary Neide Demico-Figueiró, a leading scholar in the field, one finds the possibility of engaging with the epistemological dimension, as her work compellingly raises concerns that have been evident since the mid-80s and that persists to this day, for instance, in the definitions of (theoretical) approaches of SE, as seen in Furlani (2011). Additionally, studies addressing more specific themes within SE have, over times, sought to conceptualize, define, and develop theoretical frameworks, such as Queer Theory in the work of Louro (2004).

Taking the notions of Anchors as a starting point, understood as dynamic theoretical front towards an epistemology in SE, this study poses the following central question: what potential does SE hold for research and for curricular development (both in formal and non-formal educational contexts) in light of the assumptions of the 2030 Agenda, considering the challenges of global sustainability and the new National Curriculum Guidelines Resolution (Brasil, 2024) for teacher education in Brazil?

As general objective, the present study aims to identify pathways for enhancing the potential of SE in response to global sustainability demands, while considering the specific context of teacher education in Brazil. To this end, three objectives were established *a priori*: To problematize SE in light of the 2030 Agenda and studies on environmental and sustainability issues (first Anchor); To analyze the National Curriculum Guidelines (DCN) for teacher education in Brazil, with attention to elements that implicitly foreground SE (second Anchor); and to propose theoretical alignment with

urgent environmental concerns and recent curricular developments in teacher education (third Anchor).

In order to address the research problem and achieve the proposed general and specific objectives, grounded in the conceptual and theoretical (epistemological) foundations of SE, this study adopts the Theoretical Method (TM) method, based on Roberto Hernández Sampieri, Carlos Fernández Collado and Pilar Baptista Lucio (2006). According to these authors, the TM is a research method that combines the collection of data from bibliographic sources with analytical engagement with the subject under investigation. This method provides the researcher, in its operationalization, with the opportunity to develop definitions, categories, concepts and, from these, possible theoretical formulations, enabling analysis, development of new arguments and, furthermore, the advancement of further research. It is also the researcher's responsibility to determine their theoretical references, as well as the scope and depth of their arguments e justifications (analysis) at the level they deem appropriate, without the obligation to conform to external opinions or suggestions that could be incorporated into the analysis, as first, the researcher is available to engage with the TM method, even if initially at a more superficial level, as a mean of opening pathway for future studies that may provide deeper theoretical, conceptual, methodological, political or aesthetical, etc; and secondly, by the position taken by the authors (Sampieri; Collado; Lucio, 2006), that the TM researcher is a specialist in their field, possessing expertise within the domain of study.

When researchers engage with diverse bodies of work, navigate a plurality of perspectives surrounding their object of investigation, and, above all, operate within the realm of complex theoretical topics, the TM method affords them a degree of freedom in writing, they are free to construct their respective theoretical texts. Given this freedom within the TM, the author-researcher assumes an autonomous and deeply engaged position, fully immersed in their theoretical pathways of data generation and analysis.

The criteria of each theoretical anchor are defined by the researcher's selection of classic authors within the thematic fields under study (sexual education, sustainability and education), alongside official laws, resolutions and guidelines relevant to these areas. This free choice, supported by the TM and grounded in Sampieri, Collado and Lucio (2006), provides researchers with security in constructing

they theoretical texts, as well as ensuring the validity of their analyses and research findings.

The choice of TM for the theoretical (epistemological) anchor enables reflection on the place of SE, faced with two demands, one global, one national, to promote teacher training and the training of sexual educators. Alongside teacher's education and sexual educators, attentions i also given to environmental educators committed to planetary sustainability. The TM allows the guideline to be, thus, constructed.

In this way, the article is structured following this introduction, in three sections addressing the three theoretical anchors that underpin the dossier: UN 2030 Agenda, the reflection on the new teacher training Resolution in Brazil, from 2024 (Brasil, 2024), in the potential of SE in light of these two realities, in the promotion of research and the sexuality curriculum under the National Common Curricular Base (BNCC).

2 “Anchor 1”: The UN 2030 Agenda from the Environmental/Sustainable to the sexual

Since the 2000s, the subject of Sustainability has prominently occupied the concerns of National States and public institutions, as well as private institutions and companies, regarding the care of the world and the survival on the planet, as well as what to leave to future generations. Social issues, in particular, began to be parto f the global and local script on the subject

It is Worth nothing, however, that the alarms regarding environmental problems were already recurrent since “[...] Newcomen's machine, who was a founder and blacksmith” (Cachapuz *et al.*, 2005, p. 44) – as a reference to the industrial revolution and the impetuosity of capitalism. The alarm raised by scientists continued into the 20th century, as the environmental situation worsened.

[...] by Chemical fertilizers and pesticides that from, World War II onwards, produced a veritable agricultural revolution, naturally increasing production. It should be recalled that the use of synthetic products to combat insects, pest, diseases and fungi increased productivity during a period in which remarkable growth in the world population so demanded. It should equally be recalled that some years later the World Commission on Environment and Development (1988) warned that their excess constitutes a threat to human health, causing everything from congenital malformations to cancer, and acting as veritable poisons for fish, mammals and birds (Cachapuz *et al.*, 2005, p. 44).

According to the same authors:

This poisoning of the planet by synthetic chemical products, and in particular by DDT, had already been denounced in the late 1950s by Rachel Carson (1980) in her book *Silent Spring* (a title referring to the disappearance of birds), in which she presents abundant evidence of the harmful effects of DDT[...] which did not prevent her from being violently criticized and suffering very harsh attacks from the chemical industry, politicians and many scientist, who dismissed her evidence and accused her of being against the progress that made it possible to feed a growing population and thus save many human lives. However, only 10 years later it was recognized that DDT was indeed dangerous poison and its use was banned in the wealthy world, importunately, it continued to be used in developing countries (Cachapuz *et al.*, 2005, p. 44).

The idea or notion of sustainability gradually moves away from a strictly environmental theme, directly linked to nature, as scientist (particularly in the human and social sciences) come to recognize that the environmental is not merely science, technology and innovation, but that within this “environmental” dimension lies the human and social dimension (political, economic, aesthetic, etc.), whether in the promotion of unsustainable imbalances or in the negative reception of their effects on human health and that of other living beings, including the contamination of air, water and soil. From this emerges the movement/approach/perspective of Science, Technology and Society (STS) and as its variant, Science, technology and Environment (STSE). What began as a movement at the turn of the 21st century now knows as STS/STSE education, mobilizes science teaching toward the totality of environmental issues across the fields of science and technology. Although more closely aligned with the idea of scientific literacy for all, strictly within the sciences and technologies, it contributes to a quality science education for all people on the planet as a broader and more general goal.

Stimulated by the New Philosophy of Science, STSE education combines science, technology and the environment with the social dimension of science, the influence of science, technology and the environment on people’s lives and how those same lives influence those three dimensions. Underpinning this are ethics and culture in the formation of citizens responsible for their habitat and life itself (Yager, 1993; Aikenhead, 2009).

Parallel to STSE education, gender studies, introduced by westerner European feminist scholars (Scott, 1995), from 1970’s onwards, and subsequently by Brazilian scholars (Saffioti, 2004), came to understand that unsustainable environmental conditions, which undermine the possibility of a healthy life,

disproportionately impact the ways of life attributed to women. It began to be considered that a significant part of the negative behavioral actions towards nature were produced by men who, under patriarchy, exercised “masculine power” over both women and nature.

In this way, the necessary discussions emerge within gender debates as global environmental reflections, directed towards global programs and public policies. Emerge the decolonial feminists (Walsg, 2005) initiating their reflections on women of indigenous people (Green, 2007) and the domination that subjugated them to subaltern conditions. Likewise, enslaved black women and decolonial feminists (Oyěwùmí, 1997) promoted a new perspective on how nature (the riches of the tropics) shaped gender unsustainability in the conditions to which indigenous and black women were subjected for centuries

Pateman (1993) is a British political scientist and feminist theorist. The author offers reflections on the relationship between gender and the place of power within nations. She does so by advancing the theory of sexual contract, that is, she reintroduces into the game of power the social contract that excluded women from decision-making spaces. Her theory thus proposes a new theoretical interpretation that formulates a renewed construct of gender and power, offering the potential to rethink the continuity of life on the planet, given that men occupy positions of command and power in the major destructive actions against nature.

Following the line of inquiry established in this research, which demonstrates the articulation between sexuality and environmental issues, global public policies and sustainability programs, through their funding bodies, began to draw on STS, STSE, gender studies and related fields, and started to incorporate gender and sexuality themes into their global policies and programs. Notable examples include the United Nations Development Program (UNDP) and UN women, across their various iterations up to the present day

A recent historical example of the relationship between environmental impacts, gender and sexuality, as well as a landmark moment in global sustainability decision-making movements such as the 2030 Agenda – was the Arab Spring, which happened early 2011. The Arab Spring, which originated in North African countries, served as the catalyst for rural exodus towards cities as a result of climate change. This gave rise to another sustainability concern: the role of cities and population distribution within these

spaces and the growing number of refugees, particularly towards Europe. In addition, there's gender struggles and the fight for sexual freedom of women in Islam (Lamrabet, 2010) as of LGBTQIA+ (Lesbians, Gays, Bisexuals, Transgender/Transsexual, Queer, Intersex, Asexual and more) in the Islamic world, which prompts broader reflection on the effectiveness of Human Rights

Gender equality was directly linked to the movement addressing the needs and struggles of African and Arab peoples in pushing their States towards solutions to emerging problems that, at their core, derived from and impacted sustainability, particularly climate change, which affected crops and livestock, driving up food prices and resulting in high levels of food insecurity for example. Alongside the food and economic dimensions, however, the struggles of Muslim people also encompassed governmental repression of sexual freedom, most notably that of homosexual men.

Historically, gender studies were developed primarily by western feminists from colonizing countries. Prominent are, however, the feminists from colonized countries (working within a decolonial paradigm), who documented and investigated the situation of women in the Americas. It is through the incorporation of queer and LGBTQIA+ studies into this body of studies that the theme of sustainability emerges as something far beyond the simple environmental factor of the continuity of life on the planet through climate change.

Engaging with environmental issues, at both the planetary and local level, is to engage with the question of "people", of each one of us and the other. How can one care for the planet without caring for the other? To sustain the life on the planet is to sustain the lives of all. If there is prejudice and discrimination among people, one is already experiencing a direct effect of unsustainability inhabiting a world that cannot sustain itself against something that often escapes its control: nature. Moreover, it will equally be unable to sustain itself without something that can control the behavioral actions of individuals towards one another, which involve human sexuality. In dialogue with Foucault (1988) on the control of bodies, since Victorian era this has historically been the political practice employed for the control of power, a power that became destructive to the environment, a destruction stemming from many factors, one of which is the destructive power exercised over bodies and sexuality,

The 2030 Agenda thus constitutes a pathway for environmental reflection on SE, a pathway that remains open as the field repositions itself in response to this

demand, as evidenced by the historical moments in the constitution of SE. From a historical standpoint, this repositioning, in the post 2000 period, reveals that:

Gender and sexuality relationship have been at the forefront of international Anchor. The United Nations Educational, Scientific and Cultural Organization (UNESCO) published in 2009 (revised in 2018) a document bringing together learning principles and objectives for the implementation of the Council of Europe on the prevention of sexism (Council of Europe, 2019), enables children and young people to acquire the knowledge, skills and values that allow them to take responsibility for their own behaviors, without compromising respect for equality and plurality. (Pereira Junior; Teixeira, 2021, p. 170).

Accord to Ribeiro (2021, p. 8), it is a repositioning that

First [...] we are thinking of a sexuality education that encompasses citizenship and human rights. The 2030 Agenda is a plan of action for people and for the planet that seeks to strengthen universal peace. This plan sets out 17 Sustainable Development Goals, the SDGs, and 169 targets to eradicate poverty and promote a life of dignity for all people on the planet.

Of the 17 SDGs, the following are those most closely aligned with a Sexuality Education program:

- SDG 3 – Good Health and Well-being (within which the issue of Sexual Health may be situated);
- SDG 4 – Quality Education (given that Sexuality Education is also Education);
- SDG 5 – Gender Equality (which aims to achieve gender equality and empower all women and girls, making this SDG particularly suited to Sexuality Education initiatives);
- SDG 16 – Peace, Justice and Strong Institutions (in which Human Rights and Citizenship are essential elements for the achievement of this goal).

The Sexual Education has been identified by specialists in the field as an educational urgency, one that aligns with several of the aforementioned Sustainable Development Goals. With regards to its implementation in school context, it is necessary reflecting about the professional who will carry it out, particularly in the lights of the current Resolution 04/2024 of the Ministry of Education (MEC) (Brasil, 2024), which defines new guidelines for undergraduate teacher education programs in Brazil. Both national and international scientific, literature emphasizes the central role of the teacher, given their direct contact with students, through which they may contribute to the development of citizenship.

From a curricular standpoint, beyond this alignment with the SDGs, there is also the dialogue between SE and current teacher education that will be addressed in

“anchor 2”. Both perspectives, the historical-sustainable and the curricular, within SE, will be further developed in “anchor 3”, insofar as the 2030 Agenda constitutes the first theoretical anchor for the dossier, marking the movement from a strictly environmental focus (prior to the 2030 Agenda) towards a broader sustainable and sexual movement (post-2030 Agenda and new developments).

3 “Anchor 2”: Teacher education in light of the new 2024 Resolution – In search of a Place for SE

The current Resolution governing the National Curricular Guidelines (NCG), more precisely the initial higher education training for teachers in Basic education (Brasil, 2024), established a two-year deadline for higher education’s courses to adapt their pedagogical projects accordingly. This Resolution has generated considerable criticism, not only from teachers, but also from legitimate bodies operating in the field of Education, including educational social movements.

It should be noted that the National Guidelines for teacher education have been established in Brazil since 2001 (Brasil, 2001). Several adjustments have been made aiming to improve teacher education up to the current 2024 Resolution. Reflections on teacher education have been prominently foregrounded, however, since the National Guidelines and Bases for Education Law (NGBEL), of 1996 (Brasil, 1996).

In the work of Gatti *et al.* (2019), published in the year in which the BNCC had already been approved and was underway for implementation across Brazil, the authors present the following conclusions regarding teacher education in the country:

- Teacher education is a matter of social, political, economic and cultural relevance, and of the utmost urgency, from both a historical perspective and in the current context, at the threshold of the third decade of the 2000s, marked by technologies (cybernetic society);
- The increase in investment in undergraduate teacher education, particularly in public universities, has not kept pace with the demand for teachers in schools, especially given the country's regional inequalities; were it not for private institutions (even with their accelerated programs), the teacher education system in the country would have already experienced total collapse, particularly in Early Childhood Education and the early years of schooling. Quantitative data reveal a boom in the training of pedagogy

graduates, largely concentrated in private institutions, generally in the Distance Education modality;

- The issue of training in relation to incoming students represents another serious concern identified in the study. Vacancies for undergraduate teacher education programs in Brazil remain largely unfilled across public universities.

Among the considerations the authors put forward for institutions to reassess initial undergraduate teacher education, the first four are crucial and directly relevant to the discussion of the present article:"

1. The need to overcome our historical condition of failing to attribute due importance to teacher education for basic schooling, aiming at a solid preparation for the practice of teaching, combined with the construction of a dignified career.
2. Having a clear understanding of the desirable professional profile, considering that this individual will be an active agent in the construction of learning experiences relevant to human and social life.
3. Taking into account, in the education of teachers for basic schooling, the social and cultural contexts that will permeate their work, as well as the emerging characteristics of the society in which future generations will live.
4. Changing current educational dynamics is imperative, which demands more decisive action from the MEC and the CNE, given that the vast majority of initial teacher education courses, at the undergraduate level in higher education, fall under the purview of the federal government. This issue is present both in the PNE (2014-2024) and in CNE/CP Opinion No. 02/2015 and Resolution No. CNE/CP 02/2015 [...] (Gatti *et al.*, 2019, p. 313)

Regarding the initial education of teachers and teaching practice within the scope of SE, an extensive corpus of literature, particularly from the post-1990s onwards, points to a theoretical basis of references to address the challenges posed, as seen in the works of Leão (2009, 2012), Figueiró (2006), Furlani (2011), Ribeiro (2013), Rabelo, Pereira e Reis (2013), Rizza *et al.* (2019), Bortolozzi *et al.* (2021), Varela, Ribeiro e Magalhães (2023), Mecnas *et al.* (2024) and Nunes, Alves e Franco (2025), to cite but a few authors. All of the references cited explore the formative dimension, which finds resonance in the new Resolution (Brasil, 2024), which points to elements that, although not explicit, appear to concur that the discussion of sexuality in the context of educator training is both urgent and necessary.

It is worth highlighting and augment, for the purposes of this theoretical anchor (on SE training), the attention to the question of the education of sexual educators, a

field supported by works such as Figueiró (2006) as a theoretical landmark. In that work, the author discusses the findings of a continuing education program for educators working with gender and sexuality themes.

Within this anchor, the challenge of SE training, beyond the teaching profession and university-based education, turns to the formation of environmental educators in light of the evidence, already presented in the Introduction and to be further developed throughout the text, regarding the relationship between sexuality, environmental issues and education, both in scientific research and production and in the very formulation of the SDGs. Sexual educators would be trained to expand diverse social and political spaces, including social movements and political parties, neighborhood associations, and SE practices in fulfilling the social responsibility of universities and research groups/centers, for example, through the broadest possible scientific dissemination of SE among the population, as Silva (2020, p. 138) notes:

Sexuality Education in school and non-school spaces are those projective spaces in which sexual educators communicate and interact, establishing a strong relationship with learners [...] and, in doing so, emancipate and promote the configuration of SE as gnoseology, as a science (scientific knowledge) 'provoking' the 'encounter of reaction'. In the same way, this encounter is projected onto the curriculum for training in social movements and political parties that address the themes of Sexuality Education.

In light of the problematic landscape of teacher education in Brazil (Gatti *et al.*, 2019), as well as the insufficient preparation of these professionals within the scope of SE (Leão, 2009; Ribeiro, 2013) and the scarcity of initiatives aimed at equipping them, attention turns to the new national Resolution, which continues the construction of the second theoretical anchor, aimed at reinforcing the university's commitment to ensuring that teachers are equipped within the scope of initial education

The Resolution aligns the propositions of the National Curricular Guidelines of 2015 and 2019. As Kleemann *et al.* (2025) notes, an advancement is perceptible "[...] between theory and practice, the strengthening of pedagogical competencies, and the adaptation of guidelines to regional and contextual diversities" (Kleemann *et al.*, 2025, p. 1).

The Resolution (Brasil, 2024) impacts two major aspects of teacher education in Brazil: diversity and innovation. Specifically, regarding the practicum, it will now take place from the first semester of undergraduate teacher education programs, which allows, alongside extension activities, which are necessarily conducted in school

settings, greater opportunities for university students to engage with the school context; for SE research, this may foster scientific initiation programs that can be developed over an extended period throughout the undergraduate degree, enabling above all the preparation of researchers and sexual educators for research training at the professional and academic master's level and subsequent doctoral formation.

Article 7 addresses the responsibility of Higher Education Institutions (public and private) in relation to the BNCC and the Course Pedagogical Project (CPP), which is in turn linked to the Institutional Development Plan (IDP) and its annex, the Institutional Pedagogical Project (IPP) (Brasil, 2024). By ensuring within the CPP a commitment to SE themes (gender and sexuality) so that they come to be considered and legitimized, as the very provisions of this article suggest, not contingent upon the individual teacher's disposition, given its legal-institutional status, as with Comprehensive Sexuality Education in Argentina and Uruguay, the BNCC would thus be fulfilled. Since the BNCC equally fails to make explicit the discussion and curriculum of gender and sexuality, both in this article (Article 7) and in the remaining articles of the Resolution (Brasil, 2024), the Brazilian state's conviction regarding SE in schools, as mediated through initial teacher education, remains implicit.

It is therefore pertinent to examine the relevance of Article 7: the point of departure in the BNCC and the institutional vision as the primary vector of SE practices in teacher education, as enshrined in the IDP and IPP documents. It should be reiterated that, despite the absence of a mandatory State policy on this form of education, this legal provision allows for the argument that there are potentialities for its inclusion, both as research and as a component of the basic education curriculum, through initial teacher education. Added to this, is the fact that the political forces involved in the construction of the BNCC in 2017 are factors that cannot be overlooked; these historical factors include the context of 2019 and the current Resolution (Brasil, 2024).

But what does the BNCC offers that may enable the development of SE themes, in the analysis of this Article 7? Several scholars in the field have already addressed this question and nearly all converge on the National Curricular Guidelines on Human Rights (Brasil, 2013), which were overlooked in the current BNCC, as noted by Bueno and Ribeiro (2018); Leão, Leão and Ribeiro (2024). Now, the institutional dimension within universities' IDPs and IPPs is a delicate matter, though by no means

unachievable, with numerous examples throughout Brazil in which SE is a mandatory curricular component of undergraduate teacher education programs. It is also in this Article 7, that, for the first time, the word 'sexual' appears, though not preceded by 'education': "[...] IX - the consolidation of inclusive education, through respect for differences, recognition and appreciation of ethnic-racial, gender, sexual, religious, age-related and other diversities" (Brasil, 2024, chap. III, art. 7).

Its second appearance occurs in provision XIX, in the treatment of guidelines for the Practicum. Notably, in this provision, the word 'sexual' appears again in isolation and conveys the same meaning as its first occurrence, with the distinction of referring specifically to the Practicum, which calls for a reflection that warrants closer attention within this second theoretical anchor. The text of the Resolution states:

[...] f) the critical understanding of socio-environmental, ethical, aesthetic and political issues, as well as those relating to ethnic-racial, gender, sexual, religious, generational and sociocultural diversity, and the recognition of equity principles as an organizing framework for addressing these issues in professional practice contexts; and [...] (Brasil, 2024, chap. III, art. 7, inc. XIX)

The Practicum (Core IV) is therefore invited, within its new structure as proposed in the Resolution (Brasil, 2024), to be carried out from the first semester of the program and under the supervision of a university faculty member and the accompaniment of a teacher from the school unit (reference figures), never independently, nor conducting classes alone as a substitute for an absent teacher; the student doing the intern must be guided by their reference figures, from both the university and the school unit, toward a critical understanding of gender diversity and sexual diversity. The potential of the Practicum as a formative locus for education professionals regarding sexuality and related themes was previously noted by Leão (2009).

This is undoubtedly a significant and perceptible advancement in the new legal system governing teacher education, demonstrating the indispensability of addressing gender and sexuality themes. That said, it remains to be seen whether, in the current Brazilian political context, marked by explicit polarization between left and right and the rise of the conservative far right, if this specific and direct opening in the new Resolution (Brasil, 2024) will, in practice, prove favorable to researchers in the field and to teaching practice. From a formative approach, mastery of the understanding of gender diversity and inequality, as well as sexual diversity and inequality, will be a requirement

for graduates, given that issues such as sexual harassment, sexual misconduct, toxic masculinity, cyberbullying, sexual abuse, femicide, and toxic relationships, among others, increasingly pervade school environments.

The third occurrence of 'sexual/sexuals' appears in the qualification of graduates, as previously noted, and is in Article 10 of the Resolution:

V - to identify sociocultural and educational issues and problems, with an investigative, integrative and propositional stance in the face of complex realities, in order to contribute, through access to knowledge, to the overcoming of social, ethnic-racial, economic, cultural, religious, political, gender-based, sexual and other forms of exclusion (Brasil, 2024, chap. III, art. 10).

Upon completion of the program, it is suggested to the graduates to identify issues and problems through an investigative lens, drawing on the scientific method and the complexity of the social and cultural situations that permeate gender-based and sexual exclusions. We have, therefore, a Resolution that is direct in pointing, at least from the standpoint of the theoretical anchor; towards the direction that initial teacher education must take, as scholars in the SE field have long maintained.

The fourth and final appearance of 'sexual/sexuals' is found in Article 14::

§ 2º Initial education programs must ensure that the curriculum include specific content from the respective area of knowledge or interdisciplinary content, its foundations and methodologies, as well as content related to the foundations of education, training in public policy and education management, its foundations and methodologies, human rights, ethnic-racial, gender, sexual, religious and generational diversities, Brazilian Sign Language (Libras) and Special Education (Brasil, 2024, chap. IV, art. 14).

Article 14, which forms part of Chapter IV — On the Initial Education of Teaching Professionals for Basic School Education at the Higher Education Level: Structure and Curriculum — is also directly linked to undergraduate programs; once again, the institutional dimension is indispensable for SE to be effectively incorporated into the curriculum (Brasil, 2024). In this Article, institutions are reminded that the BNCC is the language of the curriculum.

A second keyword must be recommended: gender. According to Joan Scott (1995), Guacira Louro (2004) and Judith Butler (2010), gender is a sociocultural construct, being a term that appears five times in the document (Brasil, 2024); four of these occurrences precede the word 'sexual' or 'sexuals', as already demonstrated. It

also conveys the meaning and usage of the word and concept of 'diversity', specifically, gender diversity.

In the sole instance in which it appears without being accompanied by the word 'sexual' or 'sexuals', gender sparks an important theoretical debate within this second anchor, linked to Article 5: gender inequality (sexism) as a foundational principle for undergraduate teacher programs:

VIII - equity in the access to and retention of undergraduate students in initial education programs and courses for teaching professionals, contributing to the reduction of social, regional, ethnic-racial, gender-based and any other forms of inequality (Brasil, 2024, chap. II, art. 5).

In relation to gender inequality and diversity, theoretical perspectives may be drawn from Simone de Beauvoir (1983) and other national and international structuralist and post-structuralist scholars. With these references, the field of research is expanded to encompass LGBTQIA+ individuals and the diverse manifestations of sexuality from childhood onwards, as highlighted in the studies of Silva (2015).

As a final aspect, is taken into consideration the extension activities (Core III of teacher education), alongside the Practicum, represent spaces, within the framework of the Resolution, in which SE may be incorporated. In these contexts, researchers may find, within the planning of university outreach initiatives, considerable potential for social transformation regarding human sexuality, extending beyond the boundaries of school environments.

It should also be taken into account that Academic Extension Activities (AEA), as components of education curricula, must be articulated with other curricular elements - much as the Common Curricular Practices were, which will no longer exist under the new structure. In this respect, a challenge arises for higher education institutions that do not yet have SE components in their IDPs and IPPs; these institutions will encounter difficulties in implementing the AEA. The two-year adaptation period for institutions and their respective Course Pedagogical Projects represents a period of considerable challenge for curricula that have yet to incorporate actions aligned with this form of education as a guiding principle for addressing gender diversity and inequality. This is, moreover, a challenge that Brazilian higher education institutions must take seriously. Further compounding this is the absence of clear guidance on how to achieve and structure these institutional documents, nor is it currently clear, within this theoretical anchor, who will serve as the trainer to address

the needs of gender and sexual identity studies in the curriculum outlined in the new Resolution.

Some recent works, already referenced, on SE in schools, and therefore in the curriculum, which first passes through teacher education, help us to recognize, in the current Resolution, the potential for an SE aligned with the NCG (Brasil, 2024) and, consequently, with the BNCC itself. Such works may point us toward an already familiar pathways to the field, even prior to the curricular framework. Scholarship on gender and sexuality linked to schooling since the 1980s presents elements that converge within this second theoretical anchor, as acknowledged in the current Resolution proposal (Brasil, 2024), even if, as already argued, it is not made explicit in the document.

As a conclusion to this second theoretical anchor, therefore, for both research and curriculum (what to teach, why to teach, to whom to teach, with what to teach and with whom to teach), the following elements are put forward for Sexual Education: 1) Teacher education in Brazil must incorporate, in an institutionalized manner, sexuality themes within undergraduate teacher education curricula; 2) In this training, it is necessary to consider Sexual Education (SE) in a broader sense, beyond the school environment, encompassing, for example, social movements, neighborhood organizations, political parties, and university research groups and centers, among other educational spaces that highlight the training and work of sexual educators. In sum, Sexual Education (SE) and the 2030 Agenda are for all, just as the new Resolution applies to all undergraduate teacher education programs, both public and private.

The following section focuses on the final theoretical anchor of this study, aiming of highlighting the potential of SE in relation to the 2030 Agenda. A connection is established that is fundamental to this discussion: teacher education in the national context."

4 "Anchor 3". SE and its potential in research and curriculum: an overview of the theoretical Anchors

Regarding the potentialities of SE as framed by the theoretical anchors presented here, it is argued that, first, for both research and curriculum (school-based and non-school-based), these potentialities find, initially, in the theoretical basis of

“anchor 3”, a reference for the 2030 Agenda and what is here termed Educational Support Proposals of the 2030 Agenda (ESPA). Second, these potentialities are also found in the 2024 National Curriculum Guidelines for undergraduate teacher education programs in Brazil (Brasil, 2024), despite the criticisms and resistance surrounding their implementation by Brazilian universities, which have a two-year deadline to adapt their Pedagogical Course Projects.

SE research, from scientific initiation in undergraduate programs in general (bachelor's and technology degrees) and, specifically, in undergraduate teacher education programs, through to advanced postgraduate work at the master's and doctoral levels, both professional and academic, promoted by research groups/centers or curricular components, must incorporate the SDGs. The presence of the SDGs, whether those more specifically, as identified by Pereira Junior and Teixeira (2021) as well as Bueno and Ribeiro (2018), or connections with other SDGs, may feature in the research corpus or as reference to environmental, scientific and technological impacts, etc.; in the specific context of educational products, characteristic of professional master's and doctoral programs, the SDGs may be organized in an executable manner, either a priori or a posteriori.

Alongside the SDGs, anchor 3 also considers the educational support proposals (ESPA) for the 2030 Agenda, such as: STSE education (Membiela, 2001; Gomes; Hussein, 2025); science education (Cachapuz *et al.*, 2005; Aikenhead, 2009); scientific literacy (SL) (Chassot, 2011), environmental SL; environmental education (Leff, 1999; Guimarães, 2005); the ecological subject (Carvalho, 2004); Science, Technology and Innovation (ST&I) (Soares; Prete, 2018); WSTEM (Women in Science) (Lima; Barreto; Ferreira, 2024) and, fundamentally, Human Rights (Claude; Andreopoulos, 2007), among others. These ESPAs become potential research objects for SE given that they orient the 2030 Agenda and, as a contribution of this anchor, the proposal is to align these ESPAs with SE themes drawing from gender and sexuality studies.

The methodology of scientific research programs (MSRP) developed by Imre Lakatos (1922–1974), a Hungarian philosopher and mathematician, may prove useful to university research groups/centers and SE research centers in meeting the challenge of producing potential research aligned with the SDGs and the ESPAs. For Imre Lakatos (1979), research is conducted through an investigative program, in

opposition to Popperian falsifiability. The investigative program in Imre Lakatos (1989) is both historiographical and competitive in character, the term competitive being understood here in a positive sense, as an incentive and motivation for new discoveries and for the refinement of current ones. Thus, this proposal builds upon Thomas Kuhn's perspective, but with a focus on constructing a history of research programs.

From a historiographical perspective of the MSRP, there is an extensive body of work in Ribeiro (2002, 2004), Figueiró (2009), Bueno and Ribeiro (2018), Hilst and Ribeiro (2023) on the history of SE in Brazil. This brief overview, as it pertains to the research, may serve as an initial aspect of the proposal for this third anchor, namely, the construction, from the standpoint of the 2030 Agenda, of a national record tracking the evolution of SE research tied to sustainability. Beyond such tracking, the possibility of mapping trends, new approaches and new projects is highlighted, demonstrating that the potential of Sexual Education in research is actively unfolding.

Another fundamental element drawn from the Lakatosian MSRP, suggested within this anchor for SE research programs, is the maintenance of theories/epistemologies so that, at all times, and for both experienced and emerging researchers, the historicity and evolution of these theories/epistemologies remains perceptible. One example of this principle, known as the principle of tenacity, is the succession of atomic models in school Chemistry and in textbooks, from John Dalton to Niels Bohr. There are further key aspects of the MSRP from which research groups and centers may deepen and organize their programs.

The MSRP may also be organized, as proposed within this anchor, in the form of an Observatory, within universities and research centers, in research offices, development and innovation departments, and in technology parks, serving as a goal monitoring instrument at regional and national levels, tracking whether or not the SDGs goals, relevant to the potential of SE, are being met. It is essential to include the ESPAs and, directly, the collaborative training and work of environmental educators, teachers and sexual educators, always within the perspective of collective production and the direct social impact on all stakeholders involved: universities, society, social movements, political parties, neighborhood collectives, and so forth. The starting point is a reassessment of university research groups/centers and autonomous research centers, moving away from working in isolation, from the "inside inward", and toward

working alongside and with communities, businesses, civil organizations, and equally in the alignment of human and financial resources for research and innovation.

knowledge production at both national and international levels, structured through SE research programs aligned with the 2030 Agenda, may foster motivation for research among undergraduate students, particularly those at the initial stages of their academic training.

[...] students' willingness to engage in research activities during their academic training, as well as the quality of their preparation in scientific research, is strongly influenced by their motivation and learning strategies. Accepting, in line with the literature in the field, that learning in Higher Education grounded in project-based work and participation in research is qualitatively superior, it becomes essential to examine whether students possess the necessary competencies for this more active and constructive form of learning, or whether institutions and their faculty have the actual conditions and availability to foster such competencies in students (Magalhães, 2014, p. 155).

Perhaps the major challenge for SE at present is to consider the field's potential to engage in dialogue with Science, Technology and Innovation (ST&I), Artificial Intelligence, and Robotics, particularly with regard to how technological and innovative products in the domain of sexuality will be developed and maintained at ethical, legal, and, above all, sustainable levels, grounded in the SDGs and in the EPISA, whether already theorized or still under construction at the theoretical and methodological levels. This entails producing effective responses to demands related to human sexuality and technology, while simultaneously acknowledging the global imperative to question whether such products are, in fact, sustainable.

An example of research in this direction is digisexuality, or digital sexualities, through which, globally, there is increasing discussion of sex robots as outcomes of advanced humanoid technologies, pointedly by Silva (2020, 2022). In research, the evaluative criteria must always be balanced by the standard of sustainability, an urgent and pressing concern: Unrestrained technological and capitalist advancement can no longer proceed without regard for the continuity of sustainable life on the planet and for the conditions of future generations. so that, as posited in environmental science studies, we may determine that anything that is not sustainable must be subject to further research until the threshold of sustainability becomes clear, feasible (both socially and economically), and, above all, no longer causes harm to the environment.

With regard to the school curriculum (teacher education) and the non-school curriculum (the training of sexual educators), the development of an SE-oriented curriculum remains complex due to the lack of clarity and objectivity in official documents, which leave significant gaps that hinder state and legal guidance, including the structuring and recommendation of curriculum in this field. As indicated by Figueiró (2006), such developments are currently more closely aligned with research initiatives than with formal regulatory frameworks for teacher education and official curricula in the country.

In the case of non-formal curricula, in contexts such as social movements and community organizations where sexual educators may operate, reflections on curriculum are even more diffuse and difficult to structure. One possible strategy lies in the engagement of research groups and university extension initiatives.

Research in the field highlights the need for curricular transformation to effectively implement SE. Additionally, it highlights the importance of dialogue in fostering the changes required to build a society committed to Human Rights in matters of sexuality, one that is inclusive, just, equitable, and directly committed to sustainability. In general terms, both school curricula (for teacher education and practice) and non-school curricula (for the training of sexual educators, according to Figueiró, 2006), within this theoretical anchor, must also align with the 2013's National Guidelines on Human Rights (Brasil, 2013).

It is hypothesized that, in order to fully realize the potential of SE curricula, the field must revisit and re-examine existing studies on both school-based and non-school-based SE curricula. Since the late 70s, with authors such as José Garcia Werebe (1977), Flúvia Rosemberg (1985), Nunes (1987), and Marta Suplicy (1998), there has been a productive body of work in this direction. In subsequent decades, scholars such as Paulo Rennes (1990), Mary Neide Damico Figueiró (1995), Sonia Melo (2001), and Guacira Louro (2004) have also made significant contributions. Recent researchers, from the 2010s onward, working across diverse theoretical and empirical perspectives (including sexuality and disability, LGBTQIA+ studies, homophobia, same-sex families, masculinities, femininities, feminism, intersectionality, and queer studies), have further advanced the discussion of SE's potential by integrating teaching, research, and extension, the university's core triad, as well as the social responsibility of higher education institutions, with direct benefits for Brazilian

society, in this case, through a massive investment in training sex educators who align with the 2030 Agenda.

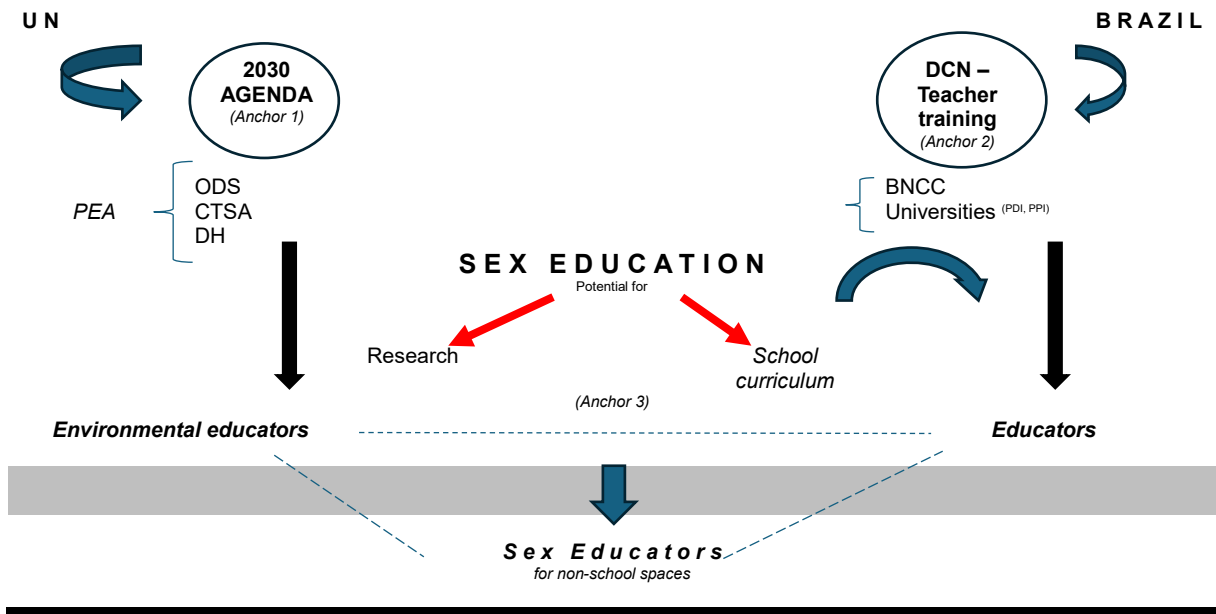
It is also evident that the Resolution discussed in the anchor 2, is framed as an attempt to promote university innovation through a top-down cultural shift, rather than the reverse (for example, through the incorporation of gender and sexual diversity themes in institutional development plans). In this sense, this third theoretical anchor proposes concrete and feasible potentialities that can be implemented within the current framework of the BNCC.

Both international authors (Santika; Basuki, 2025; Carr, 2025; Boto *et al.*, 2025) and Brazilian scholars (Ferreira *et al.*, 2025; Moura, 2025; Lima *et al.*, 2025) have directed their work toward these discussions on SE curriculum, warranting attention from researchers in the field in the development and consolidation of this third theoretical anchor. The aim is to deepen its epistemological structure. A general statement synthesizing the article's three theoretical anchors, framed as an epistemological proposal, may be expressed as follows: for a contemporary potential of SE in research and curriculum, there is a need to align with global sustainability and with the national trend toward teacher education committed to this same sustainability and to technological realities.

Both international (Santika; Basuki, 2025; Carr, 2025; Boto *et al.*, 2025) and national authors (Ferreira *et al.*, 2025; Moura, 2025; Lima *et al.*, 2025) have directed their work toward these discussions on SE curricula and deserves attention from researchers in the field, as it contributes to promoting and organizing this third theoretical anchor. The aim is to deepen its epistemological structure in this guideline. A general statement synthesizing the article's three theoretical anchors, in the form of a proposal for an epistemology, may be expressed as follows: for a contemporary potential of SE in research and curriculum, there is a need to align with global sustainability and with the national trend toward teacher education committed to this same sustainability and to technological realities.

This general representation of this sentence is presented in Figure 1.

Figure 1 – Representation of the article’s general statement: the three theoretical anchors for the potential of SE



Fonte: O Autor.

This general statement provides the basis for the article’s final considerations. It signals the research object and allows for new perspectives based on the objectives initially outlined and achieved through the development of the threefold theoretical anchors of SE. Taken together, they function as an epistemological foundation, one that is aligned with the current paradigm of sustainability and with the contemporary configuration of guidelines for teacher education in Brazil.

5 Final Remarks

The research problem and objectives are addressed through the use of the TM, which allowed the authors, within the methodological flexibility of the approach, not only to articulate their critical-reflective observations and arguments, but also to organize a theoretical grounding that can be further explored, particularly given the volume of research in the two major domains that underpin the contemporary potential of SE: the 2030 Agenda, at the global level, and the new Teacher Education Resolution in Brazil, the 2024 NCG.

In addressing the research problem, SE demonstrates its capacity to engage in dialogue with both the 2030 Agenda and the NCG for Teacher Education. Both are aligned with the development of the field of SE over time. Some adjustments remain

necessary, as discussed throughout the text, one of which is the possibility of training sexual educators alongside environmental educators. Teaching practice within the school context constitutes a theoretical (epistemological) anchor of a political nature in relation to sexuality, and calls upon the scientific community in the field to reflect on this issue, particularly with regard to engaging social movements in gender and sexuality, political parties, research groups and centers, community organizations, among others.

The general and specific objectives were achieved, as demonstrated through the first theoretical anchor, which established the connection between SE and the sustainability principles of the 2030 Agenda and the Educational Proposals in Support of the 2030 Agenda (EPSA) (e.g., STSE, ST&I, environmental education). The second theoretical anchor, enabled the identification of themes related to gender diversity/inequality and sexuality that are directly connected to SE. The third theoretical anchor, derived from the previous two, demonstrated the potential of SE in both research and curriculum.

The following directions emerge from the threefold theoretical anchors (epistemological):

- Strengthening research from the undergraduate level onward, with a focus on developing investigations within school setting and across multiple social spaces, in order to promote change and sustainability, both in the training of SE researchers and in teacher training, as well as in the preparation of sexual educators.
- Promoting innovative cultural transformations within universities, particularly in teaching practices and, especially, in curriculum-embedded extension initiatives, grounded in sustainability.
- Encouragement for greater attention to the training of sexual educators, aligned with the preparation of environmental educators and with teaching practice, particularly in non-school contexts.

In line with the concept of “mobile anchors” proposed here, the three theoretical anchors that constitute this epistemological configuration for SE remain dynamic, continuous, and under constant development, at least until every person in the world fully recognize and actively engage with the demands of the current environmental and sustainability crisis. Conversely, this process depends on

universities fully acknowledging and enacting their social, ethical, environmental, and sustainability responsibilities, which can no longer be overlooked in their institutional development plans. This will enable SE, in its full potential and with legal support, to confront current social setbacks related to sexuality, while also addressing emerging challenges posed by AI, robotics, and technological advancements more broadly.

It is expected that the threefold epistemology proposed here (the three theoretical anchors) will contribute to structuring an SE that is attentive to pressing challenges, which are not only environmental, but also structural in terms of teacher education and teaching-learning projects beginning in Basic Education. This epistemology also calls for a renewed perspective on the training of sexual educators within community spaces, social movements, and political organizations, in order to promote an SE that is accessible to all, as a scientific, social, and ecological-sustainable culture.

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