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Six avenues for engendering creative environmental activism

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1. Introduction

34 Art is thriving as a pathway to knowledge-sharing and the creation of new ideas. Today, art-35 science collaborations flourish in major basic science hubs like CERN, the European 36 Organization for Nuclear Research (Eldred, 2016), and artistic experiences arguably support 37 novel understandings of scientific enquiry (Illingworth, 2019). Art's ability to activate 38 particular cognitive processes and change values and behaviours (Steyerl, 2010) has made it 39 ubiquitous in activities in defence of the environment (Tavera Fenollosa and Johnson, 2015). 40 The focus of our review is on this latter practice. 41 Over time the use of the artwork-as-object (e.g., paintings, music, films) has been mediated 42 by the involvement of audiences in constructing the artworks' significance and in their very 43 creation (Weibel, 2014). Similarly, environmental art has shifted from representations of the 44 fragility of the environment to performative forms of understanding and communicating 45 environmental concerns (Thornes, 2008). Socially-engaged research has looked at the arts 46 (and culture) as the missing anchor in environmental action, especially in regards to climate 47 change action (Hulme, 2011; Sommer et al., 2019; van Renssen, 2017). That the arts trigger 48 grounded engagement has progressively become a tenet of activists and social movements. 49 Environmental activists contest damages such as water depletion and degradation, air or soil 50 pollution, local diversity loss, unwelcome transformation of landscapes, and the ensuing 51 exposure to environmental and health risks (Conde, 2014; Scheidel et al., 2020). Women, 52 often impacted by these damages in their daily lives, frequently lead protests over 53 unsustainable natural resource use practices (Jenkins, 2015). Women can also exacerbate 54 environmental degradation, however, when they participate in extractive activities (Kelly et al., 2014), which could reinforce their role as possible agents of change. 55 56 Examining the role of women in environmental activism prompts a broader discussion on 57 gender and related identifiers. Links between gender and the environment range from the 58 view of some traditionally powerless groups, such as women, as caregivers and stewards of 59 nature (Griffin, 1978; Shiva, 1989) to analyses of gender-specific vulnerabilities associated 60 with material conditions, power asymmetries and ensuing resistances (Gaard, 2011; Salleh, 61 2017). Analysing the literatures on artistic activism, or 'artivism', provides an opportunity to

62 explore how this range manifests itself through art in environmental movements overall. 63 Environmental studies count on well-established classifications of environmentalism (Guha 64 and Martinez-Alier, 1997; Martinez-Alier, 2002), but these do not usually centre issues of 65 diversity and gender. This review approaches the arts as a window into the diversity in 66 environmental activism, a dimension in which gender inclusion is increasing. 67 Understanding diversity in environmental movements through the arts can reveal ontological 68 distinctions with significant policy implications. For instance, women and children are 69 frequently binned into a single category in policy interventions regarding sustainability (United 70 Nations, 2015). This not only normalizes the representation of women as caretakers but also 71 neglects children's potential to pursue their own environmental agendas, whose existence has 72 been well documented (Holmberg and Alvinius, 2019). Also noteworthy, non-73 heteronormativity has become an inspiration for radical transformation across social 74 movements, including critical environmentalism (Heckert, 2012). Exploring how creative 75 environmentalism is projecting these norm-questioning ideas is therefore relevant for the 76 governance of sustainability in a way that is (largely) missing in the academic literature, and 77 also connects art to ongoing debates on representation, visibility and social boundaries. 78 In particular, an under-explored theme in the literature on environmental activism is 79 whether (and how) gender-differentiated environmental claims and/or transformative or restorative initiatives are voiced and promoted through arts and cultural expressions. This 80 81 paper aims to synthesize the existing literature on creative activism and gender, drawing on 82 a vast number of diverse expressions in nearly one century of studies, with emphasis on the 83 most recent publications. The literature is organized into six thematic strands, elicited 84 through network analysis. Analysing these six strands vis-à-vis current sustainability 85 challenges helps us to identify the extent to which gender is explicitly part of existing artistic 86 expressions of environmental activism. More broadly, our discussion synthesizes the 87 literature on the contribution of artivism to new framings of gender in environmentalism, building on existing classifications of environmentalism(s). 88

2. Methods

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Cultural artefacts produced individually or collectively constitute material objects that reflect the ongoing creation of meanings and culture (Lubar and Kingery, 1995). Therefore, they serve as evidence for particular analytic interpretations. We found this evidence in peerreviewed literature on how activists use art (Fig. 1), mining references with the search sequence (("art" or "arts" or artist* or film* or photo* or music*) AND (activis* or "social mov*")) in Scopus® and Web of Science™ in October, 28th, 2019. After examining their titles and abstracts, this procedure yielded 5652 items (journal papers, books and book chapters) related to artistic activism in 63 countries reported between 1922 and 2019. The reviewed texts were all in English, although the studies referred to artistic expressions in other languages, according to the country of origin. The ensuing coding process of titles and abstracts took two steps. The first step confirmed that the text related to environment-oriented activisms. The definition of "environment" included ecological elements (species, ecosystems), environmental pressures (pollution, waste, climate change), land uses (including the organisation of the urban space), and environmental conflicts (against mining, oil extraction, etc.), among others. The literature on social movements, especially from the Global South, recognizes ongoing debates questioning the divide between "green" activism (i.e. concerned by environmental protection) and "red" activism (i.e. centred on class struggle) (Forsyth, 2007; Hoffarth and Hodson, 2016), but our focus here is on "the environment" in its common meaning of natural resources. In the second step, all environment-related papers (N_E=756) and all the papers on artivism (not necessarily on the environment) published in 2018 (N₂₀₁₈=616) were coded. We chose 2018 because it is the most recent full year available at the time of the analysis, and also the year with most entries in our dataset. The coding isolated three themes: a) The type of cultural or artistic manifestation presented in the text; all forms of artistic creation that appeared in the dataset were included; b) the environmental topic addressed; and c) the absence or presence of gender as an explicit part of the paper's argument. Gender presence was coded into a yes / no variable. When the paper addressed gender, another column coded the specific topic (e.g., 'feminism', 'masculinity', 'girl', 'boy', 'queer'). The notion of gender neutrality is problematic (Criado Perez, 2019), so we should clarify what we call 'gendered' art. Diversity among people with intersectional identities -including e.g., age, (dis)abilities and race in addition to gender – is a relevant aspect of political

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representation to overcome discrimination and to facilitate social inclusion (Fredman and Goldblatt, 2015). Therefore, an intersectional perspective on gender (Parent et al., 2013) helps to reveal multiple interconnected identities and the relations they shape, with respect to one another and to environmental struggles (Schilling et al., 2018). With this in mind, we coded the literature based on the explicit mention of terms related to sex, gender identity or related social structures (including gender theories; gendered concepts; key attributes of gender; the role of gender in using or producing art; and the representation of genders in the arts). Frequency analysis methods of helped us to explore the resulting dataset of titles and abstracts. In keeping with the gender-relational approach adopted, we developed a visual representation of code structures on gender, types of artistic work and specific environmental topics, using the social network analysis package Gephi 0.9.1 (Bastian et al., 2009). Certain codes within the network are more closely connected to one another. We used modularity analysis, a measure of community structure in the network, to identify such tightly knit groups of codes (Blondel et al., 2008; Newman, 2006). Building on the selected literature, we describe each group of codes (or "strands") in the results section.

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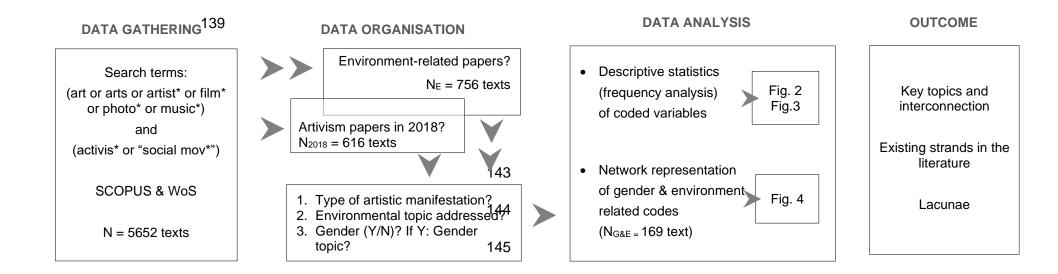
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147 Fig. 1. Data gathering, data selection, and analysis process

The resulting analysis does not capture all artistic endeavours with respect to environmental social movements on the ground; it is limited to those reported in peer-review literature. Yet the high number of entries that met our inclusion criteria suggests that the works represent a good overview of these endeavours. Our analysis offers three insights. First, it maps key topics, their salience in the literature, and their interconnections. Second, it identifies distinct existing strands in research on environmental artivism and gender. Third, it reveals lacunae in this scholarship.

3. Results

3.1. To what extent is environmental artistic activism 'gendered'?



Fig. 2. Total frequency of artistic pieces (environmental topics) reported in the literature, 2018, with examples

The variety of artistic expression used in environmental activism is shown in Fig. 2, based on 2018 data. Twenty percent of 616 studies on art and activism focused on environmental topics. They span 33 countries from all continents but are concentrated in the Americas and Europe; this skew may reflect the skew in English-language publications. After 'Art' (general category), the most frequent artistic categories used for environmental artivism are performance, music, literature (including poetry) and films. Only the main type of artistic expression was coded for each study, although admittedly these forms often co-occur, as in the case of musical performances, or scriptwriting that combines filmmaking and literature. We examined the studies to note whether the description and argument on each artistic expression explicitly included gender topics. Fig. 3 compares the perspective of studies on environmental activism and on other forms of activism, in terms of the proportion of artistic pieces with an explicit gender dimension. A transversal line divides the chart into two sectors, with dominance of environmental activism studies on the right and other forms of activism on the left.

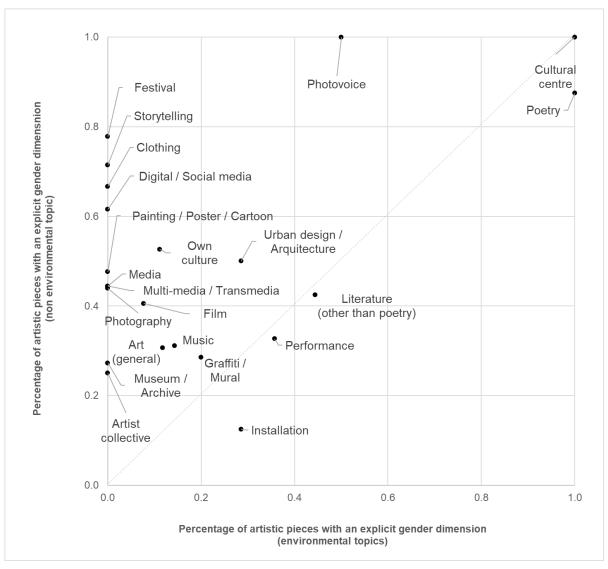


Fig. 3. Percentage of artistic pieces with explicit gender dimension, per type of cultural or artistic manifestation, 2018. Source: Own analysis, with data from references in the dataset. ($N_{2018} = 616$, $N_{2018+G} = 222$)

Fig. 3 suggests low levels of gender analysis in current works on artistic activism, particularly those involving the most frequent expressions such as Art (general category) and performances. Just 38 percent of all artworks across artistic types include gender considerations explicitly when they discuss activism. For works on environmental activism the level drops to 21 percent. Explicitly gender-oriented studies lean towards the organisation of festivals, storytelling, "message" clothing, social media, photovoice, the work of cultural centres, and poetry.

3.2. How does environmental artivism articulate with gender?

Another angle to evaluate the gendered nature of artivism is to categorise the works *in relation to the topics they cover and note how they connect with gender*. We coded specific gender-related topics in the texts, such as 'childbearing', 'young man' and sorted them into broader categories, such as 'reproduction', 'youth' and 'man'. The network in Fig. 4 shows the structure of connections between the gender-related codes (orange nodes), the environmental topics addressed (green nodes) and the types of artistic and cultural expressions used (yellow nodes).

The layout of the network relies on the representation of six modularity classes, or strands, that are most densely interconnected within the network. The most prominent ties between nodes of different classes appear as brown lines. The six strands shown in Fig. 4 provide a map of reports on gendered practices in creating and using different forms of artivism in environmental matters. Each one of these strands is an assemblage of numerous studies and the topics covered have been expressed in different ways. In this section we do not elaborate on the nuances (or debates) within each strand of the literature but emphasize key differences between them.

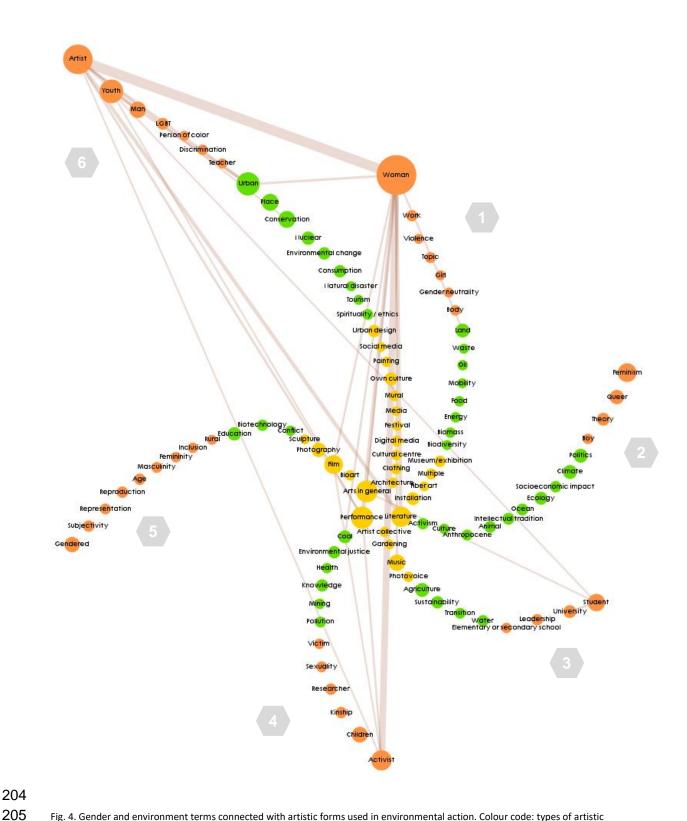


Fig. 4. Gender and environment terms connected with artistic forms used in environmental action. Colour code: types of artistic manifestations (yellow nodes), environment terms (green nodes), gender-related terms (orange nodes). Only ties with 5 or more interconnections are represented. The grey hexagons indicate the six strands described in the text. Source: Own analysis using data from 169 papers in Gephi 0.9.1 (Distribution: Radial Axis layout based on modularity classes).

The rest of the section describes each strand, using the numbering of the grey hexagons in Fig. 4 to designate each subsection. Additionally, the network discloses a strong linkage

between the node 'woman' with the codes 'artist' and 'activists', across the six strands.

Therefore, the final part of this section discusses the overall role of women in environmental artivism more broadly.

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(1) Women's and girls' embodiment of the environmental crisis

Different artistic expressions, sometimes in combination, reveal the links between environmental management -e.g., of land, energy generation, or waste- and the pervasive devaluation of women's work (Kuhn, 2016). For instance, films about landless women's engagement with social movements in Brazil show their difficulties in reversing patriarchal cultures in their attempts to secure land and become self-sufficient (Schwendler, 2009). Additionally, artworks can portray direct environmental impacts on women and girls. Exhibitions and installations present their bodies as impacted spaces devoid of privilege and challenge delusions of gender neutrality in how the distribution of environmental impacts operate (Tlostanova, 2017). The focus on the body serves to implicitly denounce the violence that the unequal distribution of environmental goods and 'bads' entails; a collection of essays and photographs containing Appalachian women's account(s) of their own activism is a case in point (Bell, 2014). Embodied expressions of environmental encounters abound in the environmental literature. Early ecofeminists drew attention to the body as the first environment that is experienced through the senses even before people learn about the notion of environment (Field, 2000). The interest in gendered bodies continues today, both as theoretical question (Clara Fischer and Dolezal, 2018) and as a part of the social imaginary. A simple internet search on 'women and the environment' quickly reveals images of women carrying timber, or water, or engaged in farming activities, in a context of environmental degradation, increased violence, or both (see, e.g., The Guardian, 2020). The thin line between fascination and objectification of the female body in connection with the environment has provoked reflections about women's situations, as in the case of meat dresses worn (and exhibited) by several artists and activists (Newman, 2017), or of flaunting nudity in biopolitical statements by feminist activists such as Aliaa Magda Elmahdy (Egypt) and the Pussy Riot collective (Russia) (Silva, 2016).

Beyond the depiction of impacts, this category of literature also portrays women and girls engaged in artistic practices that catalyse environmental commitment through the creation of meaningful objects with organic fibres or waste materials (Kuhn, 2016; Rivera-Lutap, 2015). In this approach, collaborative and relational artistic practices —e.g. food provision through land-based art and permaculture— allow the reconnecting of human bodies with Earth, 'the body of the world' (Most, 2018).

Therefore, this approach invites new forms of living and coexisting that sustain environmental and social mutualism: Wearable art such as the t-shirt design 'Wear Qisi', depicting the co-evolution of Inuit people, seals and land (O'Connor et al., 2017) exemplify the approach. In the same vein, artistic projects depicting the human-biosphere relationship, such as the ecoLAB and Herbarium in Spain, facilitate the exchange of knowledge about local flora diversity as connected to embodied acts (Lozano, 2015), in which women and girls play a major role.

(2) Feminist and queer political imaginaries for the Anthropocene

The turn of the twenty-first century witnessed the confluence of theoretical and political gender struggles and increased recognition that action was needed to counter global environmental change (Stevens et al., 2018). Our analysis reveals different literary forms (e.g., poetry, essays, novels) bringing together the social construction of gender and the recognition of the effects of human action on Earth systems. Many of these works are rooted in feminist and queer perspectives. Through their lens, ecocriticism (the study of the environment in literary works) understated vectors of domination, including gender issues, embedded in the existing modes of environmental theory, praxis and activism (Gaard, 2014; Stevens et al., 2018). For instance, the recent works of the 'New Nature Writers' in the UK have generated mixed reactions, as writers concerned about the global ecological crisis find solace in a creative escape into 'wild' environments, thus avoiding direct confrontations with histories of oppression (Oakley et al., 2018). From a gendered perspective, the solution to global debates about climate, ecological crises and ensuing socioeconomic impacts has been proposed as new political imaginaries engaged with a "feminism without borders" (Faris, 2019: 79). In 'Sisters of Ocean and Ice', Faris reports a peer-to-peer exchange between distant geographies with common histories of erasure, voiced by indigenous islander poets. In this line of analysis, the rethinking of policy,

law, and education should rely on post-humanism (or post-anthropocentrism), reconsidering the meaning of being human and of human – nonhuman relationships (Alaimo, 2016). Thus, this strand seeks to propose and 'engender' systemic solutions that confront the root causes of the Anthropocene crisis, going beyond depoliticized techno-scientific solutions on offer (Gaard, 2014). These works focus mainly on literary expressions, although there is also a rich feminist genealogy of post-human aesthetics in the visual arts exploring the diversity of radical imaginations (Ferrando, 2016).

(3) Students leading sustainability transitions

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The school is a major space where boys, girls and non-conforming children and adolescents develop gender awareness; thus schooling is both a setting and a source for the formation of social identity and confrontation with intersectionality (Ball et al., 2013). In the reviewed studies under this strand, the classroom emerges as a space of organizing for environmental change from elementary education to the university level. Artworks support crossdisciplinary sustainability education, and promote peer-to-peer learning, through for instance, artists' collectives formed by students (Larsen, 2016). Creative and collaborative pedagogic models and research methodologies -e.g. music or photovoice projects inspired by Freire's pedagogy of the oppressed (Nucho and Nahm, 2018) – help to identify local environmental problems and act collectively to tackle them. In this process, students of any gender are not passive recipients of environmental knowledge; they reshape ethical standpoints and sensibilities that percolate through to their future professional practice (Kennedy, 2017). A case is the collective garden experience for culinary students at the college level (Hellermann, 2017). Thus, students lead sustainability transitions through site-specific practices, e.g. in artistic projects related to urban agriculture or water management (Cohen and Subramaniam, 2012). Schooling also inspires models of transformation, with artists being one type of role model towards sustainability, and teachers being significant as well (Cavallaro et al., 2017). Students of all genders seem to be participating equally in these forms of artivism.

(4) Children's activism towards environmental justice

The initiation into activism arises from powerful experiences that ritualize the new connections with the self, with others, and with other species. Performances, music and

writings are a pivotal part of such initiations during childhood and young adulthood, as Pike (2017) shows for the case of animal-rights activism in the US. Environmentalism has become a pillar of children's values and activism in the last two decades, with environmental justice at the core of their interests (Sturgeon, 2009). Arguably, this is due to childhood experiences and not simply to children's moral preferences towards racial and gender equality. Childhood asthma due to mining (e.g. coal mining) (Turner, 2012) and urban facilities (e.g. incinerators) (Sze, 2004), or child poisoning due to pesticide use against rodents in poor urban areas (Swartz et al., 2018) are instances of pollution portrayed by children's artworks. While academia tries to improve knowledge about the causal chains leading to adverse health impacts, the children and their families put pressure on institutional and corporate actors by creating public awareness through literature, films and, especially, performances (Swartz et al., 2018; Sze, 2004). These expressions help to dramatize the problem (e.g., when African American or Latinx children attend rallies wearing gas masks (Sze, 2004)), speak deep truths to the society as a whole, and can generate spontaneous support for the activists' causes. A case in point is that of a mother showing photojournalistic images about the impacts of coal in West Virginia, who was then accused by pro-coal politicians of trafficking in child porn; by this means their lack of empathy became clear to the public at large (Turner, 2012). The emotional politics of reproduction is therefore a key connector between this strand and gender. In fact, not mothers alone, but an extended of set of kin and caregivers, such as fathers and grandparents, participate in these forms of creative activism (Sze, 2004).

(5) Gendered subjectivities facing environmental conflicts

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The eco-critical cultural activism of Sámi people in Scandinavia (Fuller, 2018) or the digital media platforms against the Dakota Access Pipeline at Standing Rock, North Dakota (Cappelli, 2018), are examples of the visual representations of environmental protests, and of their effectiveness in creating solidarity alignments between indigenous and non-indigenous movements. Yet the contribution of artivism in environmental conflicts goes well beyond visuals. Disputes over the environmental decision-making often mirror conflicting environmental representations. For instance, the 'artscapes' created by the Chicano Art Movement convey counter-hegemonic narratives about nationality, gender, and class in the U.S.-Mexico border region (Aushana, 2012) . They aim to confront globalised cultural norms,

largely shaped by elites of the Western world, and based on what they see as universalising assumptions about economic rationality. Similarly, the performances and installations of the Northern Caucasus de-colonial artist and activist Taus Makhacheva challenge the humanist ideals shaped by Western modernity and create artistic metaphors of alternative links between space and human perception (Tlostanova, 2017). Works such as these open the door to a diversity of subjective meanings that eventually emerge in struggles for recognition in environmental conflicts. Such diversity manifests itself through the perceptions, feelings and expectations of the subjects involved. The iconic photograph "lady in red" at the Gezi Park protests in Istanbul, 2013, became viral as it gave Turkish activists a visual outlet to frame the many constituents of their struggle, and helped them to convey the wide range of personal, social and political concerns behind the defence of a public park (McLeod, 2016). Films and bioart have sparked similar critical debates about pluralist ways of being and perceiving environmental change, and also of how to respond to such change (Clover, 2011; da Costa and Philip, 2010). Gendered subjectivities are particularly significant when the environmental issue portrayed by the artwork affects reproduction (including care work) and self-perceived identities. For instance, photography has unveiled positive emotions of joy and fulfilment that rural women in Tanzania associate with unpaid care work, and not just the endurance of the work load (Chung et al., 2019). This leads to the (re)consideration of masculinities and femininities and of how these are performed with respect to environmental conflicts and transformations (Prügl, 2011). When gendered subjectivities manifest themselves though the arts, the response of activists in the struggle can be defiant and oppositional with a sense of agency gained thanks to artistic works (Aushana, 2012; McLeod, 2016). The response could also call for inclusion of diversity in how environmental processes are perceived, building on positive emotions and affections (Chung et al., 2019). Two concrete instances of inclusion through the use of arts are public participation in scientific discussions on biotechnologies using bioart (da Costa and Philip, 2010), and adult and community environmental education through documentary films (Clover et al., 2013). Both examples entail an interest in diversity and require a

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nuanced understanding of identities of the subjects engaged in diverse disputes.

(6) Young artists pushing for urban transformation and nature conservation

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366 A part of the reviewed literature shows that, around the world, claims towards 367 environmental transformation are increasingly being made by artists-activists working on / 368 in urban spaces. The 'Amateur's Revolt' of cultural artists against nuclear power in Koenji, 369 Tokyo (Park, 2012) or Aboriginal youth artist-activists mapping health experiences apropos 370 their right to the city in Winnipeg, Canada (Skinner and Masuda, 2013) serve as examples. 371 Overall, this strand of literature is concentrated around young men, and it is also the 372 category drawing most explicitly on LGBT issues. In some instances, however, women have 373 used art as a tool to challenge sexism within ongoing protests, as with the People's Park 374 movement in California that converted unused spaces into urban green space (Lovell, 2018). 375 Young people are leading these urban changes, claiming citizenship rights today rather than 376 representing the voice of 'future generations'. To this end, the youth cohorts in revolt create 377 politicized visual symbols through films, painting, murals or digital media, or on clothing, and 378 circulate them via social media (Bright, 2012; Park, 2012; Schrader, 2017; Wade, 1999). This 379 resonates with the democratisation of engaged artistic practice defended by Gramscian 380 theorists in cultural studies, such as Raymond Williams, or anarchist cultural critics, such as 381 Herbert Read (Stevenson, 2019). 382 Young people also connect strongly with music, especially in urban multi-cultural settings 383 where (mostly) young men confront existing disparities in socio-environmental distribution. 384 To this end, indigenous rural-to-urban migrants in Mexico use rap (Colina and Talancón Leal, 385 2017), activists in the Sao Paolo outskirts use samba (Moreno, 2016), and foreign-born 386 suburban residents of Sweden use hip-hop (Beach and Sernhede, 2012). Worldwide, youth 387 artists have become skilled in critically connecting global ideas with ad hoc forms of cultural 388 identity, merging vernacular legacies with international influences, such as with Siberian 389 variations on pop culture (Habeck and Ventsel, 2009). 390 In the young artists' environmental movements, critical views of consumption, including of 391 global tourism, are part of a broader critique of capitalism, with second-hand style adopted 392 to make a point (Le Zotte, 2017). This effort to promote radical environmental change blurs 393 the boundary between cultural intervention and political activism. For instance, the houses 394 of young independent artists in Bucharest, Romania, are hybrid spaces of artistic creation 395 and performance, but also of civic mediation (Surugiu, 2018). Thus, artists develop or reclaim common spaces for the creation and experience of artistic production, in a way similar to how cultural centres or festivals operate. Accordingly, the use of art is seen as a form of public pedagogy that privileges creative praxis and empowerment against social apathy. In some cases, this challenge motivates teachers to try and stimulate collective discussions through artistic and multimedia creations (Reis, 2014).

Solidarity and civic mediation are at the core of the ethics of place for these young movements. Inclusion policies build in partnerships with groups that emphasize social equality, such as the LGBT community (Misgav, 2015). Rather than imposing or directly advocating moral conduct, artists 'activate' their audiences by promoting critical thinking through exposure to art. An example would be the work of the Portuguese-Belgian performance artist Maria Lucia Cruz Correia, who created 'Urban action clinics' against the problem of air pollution in Ghent, which confronted the spectators with their agentic capabilities (Stalpaert, 2018). Overall, this strand emphasizes a vision that is anchored in the use and improvement of the urban environment. It also projects a vision of nature

A detour: women and environmental artivism

of nuclear power (Park, 2012).

Though the literatures we reviewed recognize the conceptual (and political) difference between women and gender, in fact most selected studies on gender are on women. The network diagram (Figure 4) shows that a large body of gender studies puts women at the core. The term 'woman' is the most frequently coded term in our review, and is the most connected with other nodes, especially in studies reporting women's capacities as artists, activists, and students. Therefore, the use of the concept "woman" within topics beyond the embodiment of environmental crises, physical or perceptual, as presented above, deserves some attention.

conservation, with engagement on critical socio-environmental debates, such as the future

Women can re-appropriate their cultural identities to empower themselves and take concrete steps to challenge dominant visions of health, food provision, and poverty. For instance African-America women in post-industrial Detroit use rap, a genre often associated with sexism and misogyny, to inspire those experiencing life challenges after the city's industrial decline (Farrugia and Hay, 2018). Filmmaking is also a powerful mechanism for women's empowerment and connection to space. An example would be Palestinian

women's footage of human-rights abuses: Due to their engagement with the place in which the women are filming, usually shooting from the homes they try to protect, this footage is of high quality from a technical point of view (Ginsburg, 2016). By contrast, the vision of women as victims is common in films -e.g., the story of a woman traded for land in Mexico (Ross and Funari, 2016); and in performances –e.g., Hakka housewives in Taiwan suffering a catastrophic natural disaster (Liang, 2012). These visions are often intended to support processes of overcoming adversity, memory or healing. A primary contribution of women artists is to help visualise the role of other women in environmental struggles. For instance, the literary work of Shannon Elizabeth Bell (2014), illustrated with photo-stories, portrays the grassroots activism of Appalachian women against mountaintop removal mining. Her work not only reflects specific initiatives undertaken by the women, but also the connection between contested situations and the women's everyday lives. A similar stance is adopted by the artist and filmmaker Zira Saro-Wiwa when visually exploring the implications of resource extraction and labour exploitation in the Niger Delta (Makhubu, 2018). Women artists as covered in the reviewed works seem particularly keen to create encounters with vulnerable groups. Such is the case of participatory film-making with victimised women in Mexico in contexts of access to land or in maquila factories (Ross and Funari, 2016), or emancipatory feminist events connected with the production of space, such as the Ladyfest in Romania, linked to the Riot Grrrl movement (Lelea and Voiculescu, 2017). A characteristic of these collective works is the desire to recognise and foster creativity around elements of nature, particularly in locations facing environmental injustices, such as rural areas or industrial settings. 4. A conversation between gendered artivism and varieties of environmentalism The analysis of the literature on gender and artistic environmental activism has revealed six distinctive forms of expressing, communicating, and engaging with, transformative environmental politics through the arts. The works carry different messages. Some of them are oppositional, some of them are not. Besides unveiling diversity, how does the lens of art broaden our vision of the diverse ways in which claims are made by people engaged in

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environmental action?

In order to contextualise our results, we bring them into conversation with the well-known 'varieties of environmentalism', first proposed by Guha and Martinez-Alier (1997), elaborated by Martinez-Alier (2002) and later revisited by Anguelovski and Martínez-Alier (2014). These authors cluster demands for environmental improvement around three currents: a) an appreciation and active protection of wilderness, b) the advocacy of ecoefficiency and ecological modernisation through technological improvements and market solutions, and c) the engagement of people relying directly on the environment as a material foundation for their livelihood, or the "environmentalism of the poor". Anguelovski and Martinez-Alier (2014) emphasize the philosophical and practical ties between the first two currents, and the affinity of the latter with environmental justice movements worldwide. In the following, we review the gender dimensions of each one of these currents, as presented through the arts, and comment on how the results of our analysis challenge or expand upon these dimensions. Our paper does not oppose or advocate for any of these currents but signals the types of insights that engagement with gendered artivism can bring to each one of them.

4.1. Appreciation of wilderness beyond the gender binary?

Originally, conservation science and action paid little attention to gender, or to people for that matter (Rodríguez-Labajos and Martínez-Alier, 2013). With the increasing interest in understanding humans' role either as a threat to, or as agents of, conservation, a variety of social-ecological approaches gained momentum at the turn of the new century (Kareiva and Marvier, 2012). Yet twenty years later, the consideration of gender aspects in conservation actions is in its infancy.

A step forward is the acknowledgement of inequalities and biases based on gender-based differences. Discrimination against women leading conservation projects (Jones and

differences. Discrimination against women leading conservation projects (Jones and Solomon, 2019), and underrepresentation of women researchers in conservation institutions (Bauer et al., 2019), clash with the evidence of better conservation outcomes when progressive gender quotas are in place, even within a gender-binary formulation (Cook et al., 2019). Yet our analysis emphasizes the central role of women in artistic activism. We have presented instances in which artistic activism becomes a space of political mobilisation for women in traditionally male-dominated spaces of contestation. In the past, similar advances have been made in labour struggles (Neunsinger, 2010) or struggles for social justice

488 (Bhattacharjya et al., 2013), though not necessarily relying on artivism. In these movements, 489 women pushed up the agenda of gender equity, with uneven results. An argument for 490 artivism and for the inclusion of women artivists in particular is their willingness to represent 491 (and support) the role of other women in environmental management, as the reviewed 492 studies have shown. 493 Similarly, environmental studies have used the gender binary [women / men] as a factor to 494 explain differences in conservation attitudes and personal constraints towards adopting 495 conservation positions (Tindall et al., 2003). The limitations that different gender and age 496 groups face in acting upon their environmental concerns differ considerably (Jenkins, 2015; 497 Mohai, 1992), as do their needs and preferences, as made apparent in our categorisation of 498 environmental artivism. In congruence with Butler's (1990) concept of gender 499 performativity, people tend to adopt environmental behaviours congruent with gender roles 500 due to sociocultural expectations, which they may themselves absorb (see Swim et al. (2018) 501 on climate change policies). This view is also reflected in the feminist political-ecologist 502 argument that engendered and differentiated "experiences of, responsibilities for, and 503 interests in 'nature' and 'the environment' " (Gonzalez Hidalgo, 2017: 15) are socially 504 constructed rather than inherently feminine (cf. Shiva, 1989). 505 Artivism can go beyond providing tools to support increasing women's engagement in 506 conservation efforts. Some of the same voices calling for gender quotas in nature 507 conservation processes have started to recognise gender diversity beyond the conventional 508 binary, and also intersectionality (especially considering age, ethnicity or class) in 509 conservation action (Editor Nature Climate Change, 2019). In this regard, our results advance 510 a nuanced understanding of diversity in artistic artivism. While we identified a connection 511 between biodiversity, biomass and land management with the representation of women and 512 girls (Strand 1 in the network), conservation is in fact a topic to which the creative work of 513 young urban generations, especially men and LGBT groups, can relate (Strand 6). As a result, 514 a variety of channels (digital and social media, festivals, mural painting) have gained 515 relevance in favour of conventional conservation initiatives. 516 Additionally, artivism can also trigger meaningful conversations about contradictions in 517 current biodiversity policies that invite the construction of new visions for nature (Otero et 518 al., 2020). The avenue on the gendered political imaginaries for the Anthropocene, which

connects with insights from feminist and queer politics, seem particularly relevant for that purpose (Strand 2).

4.2. Searching for 'unstereotyped' eco-efficiency saviours?

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Consistent with the market-orientation of the eco-efficiency approach (see Bakker, 2014), gender debates are reflected in analyses of consumption and production processes in which women are involved, and in calls for the feminisation of corporate practices. While the limited scientific literature around these topics does not provide strong bases for expecting gender differences in corporate responsibility (Calabrese et al., 2016), extended market practices can accentuate the role of women as being at the forefront of consumption choices, and assert women's roles as agents of change. Furthermore, technology policies on energy efficiency, and water and waste management may benefit significantly from a gender-responsive approach (UN Environment, 2017; UN Women, 2014). The eco-modernist approach within environmental studies showcases examples of women taking on tasks in production processes predominantly done by men (e.g., Unilever, 2018) as evidence of the transformative potential of women's leadership. However, stressing women's responsibility in household decisions about consumption could perpetuate their role as caregivers or 'sustainability saviours' (a label questioned by Leach, 2015) on the one hand, and de-emphasize the focus on corporate responsibilities on the other (Hunt, 2020). Also, as much as the eco-modernist approach presents itself as free of stereotypes, it barely challenges the political and socioenvironmental context of existing production processes. It may even lead to the risk of creating new stereotypes, with women in the limelight, as Leach (2015) points out. Against this background, our analysis provides two insights that are broadly compatible with an eco-efficiency approach. The first one is to challenge the notions of women solely as providers of care (of their families and of the environment) by portraying them in actions of creative activism. The lens of artivism reveals forms of care (parental or otherwise) that fit new realities and new subjectivities that the broader environmental movements literature could usefully absorb. These subjectivities liberate women from the pressure of leading transformations of large processes that they are just a part of, as is apparent from the literature on children and artivism (Strand 4). At the same time, new leaderships (of children, urban youth, or LGBT groups presented in Strands 4 and 6) need to be acknowledged and

integrated into decisions about sustainability. Our analysis reveals schooling as an important source of environmental leadership for young artist activists at all levels of the formal education sector (Strand 3). Increased knowledge about the implications of students' leadership for corporate social responsibility (Galvão et al., 2019), and a better understanding of the use of arts in alternative models of education seem two helpful lines of future research and action for sustainability. In general, we find that the emphasis of artistic practice as a relational tool (with others, or with the environmental issue at hand) underemphasizes the role of individual "saviours" in favour of shared leadership and responsibilities.

A final note on activism linked to production processes has to do with an emerging interest in promoting gender diversity in corporate boardrooms (Nadeem et al., 2017). This aligns with ongoing initiatives of shareholder activists (Pax, 2018). We found no examples of artistic activism in the reviewed literature that link to this line of action.

The environmentalism of the poor voices the perspective of the powerless. It features the

4.3. The environmentalism of the (gendered) poor?

value of environmental conflicts and resistances against developments that affect the relationship between underprivileged people and their environments. For this reason, it might be thought to resonate with the argument of a special connection between women and Nature as argued by an essentialist ecofeminism. Against this, the contribution of poor women in defending the environment has more often been explained in political-ecological terms, by a direct material dependence on environmental quality and associated use of work time (Agarwal, 2001; Anguelovski and Martínez-Alier, 2014).

In general, few studies on ecological conflicts or distributional injustice from the environmentalism of the poor perspective have paid attention to gender differences (Veuthey and Gerber, 2012, 2010), perhaps due to the conviction that "both men and women are close to nature, whether we like it or not" (Martinez-Alier, 2002: 211). However, there is an emerging interest in the role of gender and violence in ecological resistances (Nixon, 2011), and especially in direct violence against women activists (Martinez-Alier and Navas, 2017). Environmental artivism focused on the embodiment of the environmental crisis in women and girls (Strand 1) mirrors this interest.

580 Additionally, the identified strands of literature indicate that artistic activism contributes to 581 rendering more visible the gender relations embedded in processes of environmental 582 defence. In particular, three insights from our analysis seem to fit particularly well the 583 premises of the environmentalism of the poor. 584 The first one is the capacity of artivist practices to transcend disciplinary perspectives and 585 demonstrate the complex relations, including of gender, that often emerge in conflicts over 586 ecological distribution. In our analysis, this was shown at two levels. At the global / planetary 587 level, the works advocating queer and feminist politics for the Anthropocene (Strand 2) call 588 for breaking boundaries both in artistic production and in environmental politics. The 589 artworks generated in specific environmental controversies and disputes (Strand 5) implicitly 590 call for a (re)consideration of femininites and masculinities, how these are represented, and 591 the room they create to express different subjectivities. 592 The second insight is the recurrent call across gendered avenues of artivism for collective 593 and collaborative action, and the relevance placed on the creation of relational values 594 through art. All the strands in the network offer guidance on salient interactions. A starting 595 point is Strand 1 which, while emphasising the visualisation of environmental crises through 596 their impacts on women and girls, also insists on embodied acts in response. Young (1980) 597 noted the complicated relationship of women with the corporeal, experiencing their bodies 598 both as a burden and as an object to be protected. Strand 1 captures this point, emphasising 599 'protective' responses through artivism that reinforce environmental and social mutualism. 600 Such relational practices are to be expected across genders and generations, as gender 601 dynamics and situated agencies basically consist "in relations, forging and reforged through 602 complex interactions between embodied persons through socially-shaped practices" 603 (Morgain and Taylor, 2015: 3). 604 The third insight is the turn of activists' practices towards emphasizing the emotional. 605 Processes of environmental degradation, it has been argued, are imbued with ecological 606 grief (see Gordon et al., 2019), a mourning and loss that transcend the material. In their 607 attempt to solidify the material basis of ecological destruction, studies on the 608 environmentalism of the poor sometimes neglect this aspect. This aspect resonates with the 609 consideration of gendered subjectivities in resource struggles (Strand 5) and of how the 610 emotional plays a role in the creation of art, and in the transformation of the conflict. Critical

movements challenging traditional gender-mediated roles in environmental conflicts emphasize the value of emotional involvement, "creating spaces for alternative selves and practices and by unveiling the contradictory/ambiguity of selves/identities as sites of social transformation" (Velicu, 2015: 847).

Our analysis has some limitations that must moderate our conclusions on how artistic activism expands three leading varieties of environmentalism. The review has captured a diversity of processes reported in the literature. Yet we are certainly missing insights from environmental movements that use artistic expressions that are not reported in the scholarly literature. We know that activist groups, large and small, continue to engage in attempts to fuse art and advocacy, e.g., the Natural Resources Defence Council's artist-in-residence program (Greenfield, 2018). At certain times, artists have led the response to socio-environmental problems they perceive, as in the case of the 'Des-minado' exhibition in Colombia that unpacked the contrast between governmental efforts to remove land mines after the civil conflict, while also positioning of the mining sector as a national growth engine, despite its disruptive effects (Liberatorio Arte Contemporaneo, 2016). These and other similar initiatives deserve closer examination, particularly in terms of the role that art plays in articulating with gender in terms of inclusion, leadership, and mobilisation strategies of environmental activists.

In this respect, we can question the low figures of artistic production with gender

In this respect, we can question the low figures of artistic production with gender considerations in environmental topics (21 percent, according to results presented above); they could well signal an under-reporting of gender aspects in artivism, but also in research on artivism. Our review therefore calls for a broader, but also deeper, exploration of embedded gender analysis in research on art and environmental movements (see also Segnestam, 2018).

Conclusion

By examining intellectual production around the use of the arts in environmental activism, this paper sheds light on the ways in which broader environmental movements, and the role of gender in environmental movements, have been categorised. The six identified avenues

might not be the only ones. But our analysis organises a broad body of academic literature into a map of ideas that mirrors many existing practices of environmental activists. A highlight of the study is calling out the significant presence of young demographics, including young adults, children and students in environmental artivism. Any transformative project aiming at engaging younger populations should emphasize artistic activism as part of its strategies. At the same time, a gendered vision of artistic activism makes visible the differential power to act of different groups, be they women, young people, or LGBTQ collectives, and their chosen scopes of creative action in the environmental arena. The reviewed works collectively acknowledge the diversity of entry points into environmental artistic activism as respecting cultural norms and individual preferences. A noteworthy finding of the review is that the gender dimension is more present – at least in the scholarly literature -- in other types of artistic activism than in environmentalist activism. Given the timing of the research, we could not take into account the explosion of new artworks in North America and Europe that were created in the wake of Black Lives Matter (BLM); we suspect that the skew would be even more pronounced had we been able to incorporate analyses of BLM in the visual arts in particular. A comparative analysis of gender as in environmental artivism versus in other types of political artivism could be a productive line for future research. Environmental movements using art forms should consider the extent to which the (relative) lack of sensitivity to gender could play in a potential loss of artistic interest in developing work with an environmental lens. Indeed, environmentalism and its activists could otherwise miss the chance to exploit the uniqueness of art in keeping movements alive, bringing joy and hope to highly stressful contexts of socio-environmental degradation, and even promoting physical and spatial transformations.

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